



CHARLES H. ACREE, General Superintendent
Panama City, Panama



ARTEMUS B. ENGLE, Superintendent
La Lima, Honduras



BELTON W. KUBBEN, General Superintendent
Guatemala City, Guatemala



EDWARD L. COMMAGERE, Division Superintendent
New Orleans, La.

MEN OF DESTINY



TRT president Robert V. Howley (center) with top aides, G. R. O'Donnell, assistant to president; George C. Harris, Jr., traffic superintendent; Roy S. Hood, commercial superintendent; and C. C. Harris, vice pres. and chief engineer. Also shown are men who head TRT operations in key locations.

"TROPICAL RADIO" - THEIR HERITAGE



ROY W. JONES, Superintendent
Fort Lauderdale, Fla.



JAMES W. PARKER, Superintendent
Managua, Nicaragua



CHARLES W. PHILLIPS, Superintendent
San Jose, Costa Rica



STUART M. CRAIGIE, Operations Engineer
San Jose, Costa Rica

THE STORY OF TROPICAL RADIO

Historical Paper
By
Charles Cohill Harris

Presented Nov. 14, 1941 by TRT Chief Engineer Harris to Members Boston Sec. I.R.E.

The Tropical Radio Telegraph Company is the communications subsidiary of the United Fruit Company. Tropical was organized and incorporated in 1913 to operate the communications system built up by the parent company. It therefore seems appropriate to outline briefly the early history of the United Fruit Company before describing the system and plant facilities of the subsidiary company.

It is recorded that on a June day in 1870, Captain Alonzo D. Baker, Wellfleet, Cape Cod, took his 85-ton schooner, named the "Telegraph," into Pt. Morant, Jamaica, for a cargo of bamboo. After attending to his business ashore, Captain Baker paused for refreshment. While enjoying a tall cool rum punch, he met a man who had a quantity of bananas to sell cheap. The story relates that after the second rum punch, Captain Baker purchased the bananas for twenty-five cents a stem. He made the passage to New York in eleven days and sold the fruit, some at two dollars fifty cents and some at three dollars twenty-five cents a bunch. This transaction naturally made Captain Baker very enthusiastic about bananas. The next year, 1871, he made another voyage to Jamaica and returned from Port Antonio with four hundred bunches. This passage took seventeen days. Captain Baker teamed up with a partner, Captain Jesse H. Freeman, also of Cape Cod, and they continued to buy bananas in Jamaica and sell them in New York and Boston for the next three years. However, they were put out of business for a while during that period because of excessive loss of fruit through over-ripening during slow passages. In the early 80's Captain Baker had a new schooner built with auxiliary steam power. It was named the Jesse H. Freeman, after his partner, and was capable of carrying 10,000 stems of fruit to New York or Boston in ten or twelve days. In 1885, Captains Baker and Freeman met Andrew W. Preston, a salesman with a Boston Commission House. These three gentlemen together with seven others chipped in \$2,000 each and formed the Boston Fruit Company. They all agreed to take no profits out of the partnership for five years. The venture flourished and five years later, in 1890, the Boston Fruit Company was incorporated. The Boston Fruit Company had one steamer named the "Bowdoin" but soon after the incorporation, six new vessels were built and they later chartered four more ships - the Admirals Dewey, Sampson, Schley and Farragut. Preston called them the "Great White Fleet."

The advent of refrigeration cars made it possible to reach markets for fruit further from the seaboard and Preston organized the Fruit Dispatch Company to handle distribution and sale of bananas. Jamaica could no longer meet the demands for fruit and cheap lands were purchased by the Boston Fruit Company in Cuba and San Domingo but the venture in these new fields failed and it was necessary to find other banana lands.

To go back again to 1871; in that year a young man named Minor C. Keith went to Costa Rica to assist his uncle in building a railroad from Port Limon, on the seacoast, to San Jose, ninety miles over the mountains. Malaria, yellow fever and dysentery took a large toll of lives among the laborers working on this project. It is said that a man died for every tie laid between Limon and Zent, a distance of twenty miles. In 1873, young Keith began planting bananas in the low lands in back of Limon. The railroad was completed in 1890 but passenger

traffic did not materialize and Keith found himself in financial difficulties. Freight was needed to provide the road with revenue. Keith had heard about the Boston Fruit Company and got together with Preston. As a result of this meeting the United Fruit Company was formed out of the Boston Fruit Company, on March 30, 1899, and capitalized for twenty million dollars. The United Fruit Company bought the bananas Keith had started to cultivate many years earlier. Thus freight was provided for the Costa Rican railroad and Keith pulled out of his financial difficulties. He later went to Guatemala to build another railroad.

From this beginning the United Fruit Company has become a large corporation with vast properties in Central America and the West Indies. It has under cultivation over 400,000 acres of land and owns and operates eighteen hundred miles of railroad. It owns and operates telephone, telegraph and power systems, as well as hospitals and commissaries throughout Central America. It has a fleet of about one hundred steamships and the necessary wharf facilities both in Central America and the United States. The Fruit Dispatch Company is still the fruit distributing agency of the parent company.

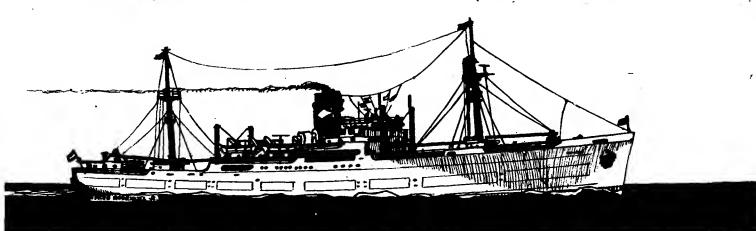
The banana is a perishable product. As the United Fruit Company expanded, rapid communication between its plantations, divisional headquarters and home offices became a vital necessity. Until about 1904 the entire eastern coast of Central America and Northern Columbia, in South America, was without any direct means of communication with the United States, except for the cable station at Colon, Panama. The route for the messages from the States to Central America up to that time was by cable, through Galveston, Texas, across Mexico and down the west coast of Central America to San Juan del Sur, Nicaragua. From San Juan del Sur messages were distributed over local government-owned and operated telegraph lines to point of destination.

The entire Central American area, particularly the coastal region, is subject to torrential rains for about nine months of each year which cause floods and washouts. The government lines and services were subject to frequent disruptions because of these conditions.

Telegraph systems were constructed by the United Fruit Company for communication between the banana farms, divisional headquarters and loading ports but they were forced to rely upon the government-owned and operated systems for communication between the headquarters in each of the countries in which they were operating plantations. Consideration was therefore given to the possibility of establishing telegraphic communication between the operating headquarters in the different countries.

Until 1904, the only means of communication between the company's Costa Rican headquarters at Port Limon and the Panama headquarters at Bocas del Toro was by a seventy-five mile water route in the open sea. Messages were sent back and forth in the care of natives who paddled cayucas or log canoes seventy-five miles in the open sea in from thirty to sixty hours, depending upon weather conditions. The cost of each trip was twenty-five dollars oro Americano (American gold). The route

(Continued on Page 24)





Charles Cohill Harris

Date of birth - May 6 1898 in St. Louis, Mo. In 1912 he obtained a first class Amateur Radio Operators License - he is listed in the 1913 edition of the Government Call Book with call "2EFZ". His first 1st Class Commercial License was issued in 1914. He joined United Fruit Co., as a shipboard wireless operator on Feb. 14 1916 and was transferred to shore station service in Sept. 1918. He worked on installation of new plants at Almirante, Panama; Puerto Barrios Guatemala and Miami, Fla., and was Operator in Charge of stations at Swan Island (Caribbean); Port Limon, Costa Rica; Puerto Castilla, Honduras and Puerto Barrios.

Mr. Harris left TRT in Dec. 1925 to enter the radio broadcast field. He also did radio interference engineering for RCA before returning to TRT May 9 1927 as an engineer in the General Office at Boston Mass. He was appointed Supt. Boston Division and Assistant to Manager in May 1929. In Dec. 1934 he was named Supervisor, Frequency and License Bureau and was appointed Chief Engineer, T.R.T.C., in August 1940. Harris was elected Vice President, May 3 1948 and Senior V.P. April 9 1959. He was also Director of TRT and of Tropical Radio Service Corp., which handled ship stations of the United Fruit Company's fleet.

During the mid-1930's, Harris initiated development work for further system modernization in the advancing state of the art. An Engineering Dept. was organized to develop and design equipment best suited to operating conditions in the tropics. All plans were ready on the eve of World War Two but were necessarily deferred. However, factory production of equipment started in 1946 and shipments commenced in 1948. The new system was in full operation by mid-1950's and Tropical Radio was operating the only mechanized 'forked-circuit' radio system in the world.

Mr. Harris retired from Tropical Radio, May 31 1963. He was Chairman of Boston Section of IRE - 1944 and 1945. He is a life Senior member of IEEE; Life member of Quantum Yacht Club, Quincy, MA, and of the Chesapeake Bay Maritime Museum, St. Michaels, Md. He is a retired Lt. U.S.N.R. and holds memberships in radio, historical, art and photographic societies.

Picture - 1944 from the Raymond B. Jewett collection.

Early in 1904, Mr. Mack Musgrave, who was in charge of the Company's telegraphic service in Costa Rica, was instructed to make an overland survey between Limon and Bocas and report on the practicability of building a telegraph line to connect these points. The overland distance between Limon and Bocas is about one hundred and fifty miles. Musgrave reported that an overland telegraph line was impracticable owing to the numerous rivers and swamps to be crossed. He pointed out that beside being costly to construct, such a line would also be costly to maintain and the service would not be reliable. Twenty years ago, I made the overland trip between Limon and Bocas and can well appreciate Mr. Musgrave's conclusion. Twenty years ago, there was only a fourteen-mile stretch of the trail left. The rest of the route was covered by the banana railroads on the Costa Rica and Panama sides of the border.

My trip, 18 years after Musgrave's survey, was by motor car from Limon to Zent - 20 miles west (up country) - where we switched to the Estrella Valley line which ran about 80 miles south to Suretka near the Panama border. I overnighted there and was then given a mule and a guide (also on mule) for the trail ride. It was still virgin jungle and swamp and the Dos Bocas river crossed and recrossed the trail 9 times in its 14 miles. The rains had started and a week or so before, about 100 head of cattle and horses had been driven over the trail, so the journey was a very muddy one. On the Panama side of the border, the trail was over the top of Chirilo ridge - a razor-back hill about 800 feet high. On the climb we had to dismount frequently to help the mules and on the descent all four of us (mules and men) went down most of the way on our own hindquarters. We arrived at Alimanta in Panama thoroughly mud-covered, and continued on to Almirante by motor car from Guatiba. Incidentally, a motor car is not an automobile; it is a small railroad pump or hand car from which the pump handle and gear have been removed and a small gasoline engine installed for propulsion, and a small buggy seat added. The use of a motor car always travelled with a "motor boy" as it was often necessary to stop and get the car off the track to let a banana train through on the single track lines; it took two to get the car off and on the track again.

Musgrave recommended instead the establishment of a wireless telegraph circuit between Limon and Bocas. His recommendation was adopted and Musgrave was instructed to proceed to the United States to purchase the necessary equipment. This was shortly after the International Yacht Races off Sandy Hook, New York, for the America's Cup, between Sir Thomas Lipton's Shamrock III and the American defender - Reliance. These races had been successfully reported by wireless by the original American DeForest Wireless Company, later known as the United Wireless Telegraph Company. Musgrave purchased the transmitting and receiving apparatus used by the DeForest Company in reporting the America's Cup Races and shipped it to Bocas del Toro where it was installed in 1904. Similar equipment was purchased for Port Limon. The circuit between these two points was established March 23, 1904 and was the first wireless telegraph service to be established in Central or South America.

This picture shows the Limon Station installation at the time the circuit was opened. The gentleman in white with the handle bar mustache is Mr. Musgrave. The operator's name was C. A. Barnhardt, who assisted with the installation. A speedy messenger boy appears in the background.

This picture shows the antenna mast. Some years later the location of this station was moved to Hospital Point right on the water and the wood mast structure was replaced by two 200-foot self-supporting steel towers.

In 1906 two more stations were built. One was located at Bluefields and the other at Rama on the Escondido River, in Nicaragua. The equipment for the Bluefields and Rama Stations was similar to that installed at Bocas and Limon. These early spark transmitters employed Leyden Jar condensers and the fire-cracker type of high voltage transformer. Transformer potentials were very high - of the order of 50,000 volts - and rather frequent circuit interruptions occurred as a result of condenser failure, particularly those of American manufacture. Because of the frequent failures it was difficult to keep sufficient spare jars on hand and the Bluefields Station was faced with a prolonged shutdown not a great while after its establishment. Yankee ingenuity found a speedy solution for the serious problem. A condenser was made with an old five-gallon wine demijohn, filled with salt water and set in a half-barrel which was insulated from the floor with empty beer bottles. This condenser held up for two years. Another replacement was put together by the operator. This one remained in service until the old original Bluefields Station was dismantled in 1925. It is shown in the next picture. It had been observed that Leyden Jars of European manufacture stood up better than American-made jars, which was attributed to the better European glass. The condenser shown in this picture was made of champagne bottles filled with salt water and set in an old iron cook-vessel. The iron pot was insulated from the table with old heavy bar whiskey glasses. The champagne was imported from Europe and the bottles were therefore a good grade of glass. Ample replacement bottles and whiskey glasses were always available in Bluefields - and it was thus easy to keep or get adequate spare parts.

(Continued Next Page)

TROPICAL RADIO TELEGRAPH COMPANY

(Continued from Page 23)

for messages from the Company's offices, in the States to Bocas was as previously described, via the Galveston cable to San Juan del Sur, Nicaragua, thence via Nicaraguan government land lines to the Costa Rica border where the messages were transferred to the Costa Rican government land lines for delivery to the Company's Limon office. The Limon office then dispatched the messages by cayuga messenger to Bocas. Under these communication difficulties it frequently happened that messages relating to changes in fruit cutting schedules or the diversion of a steamer from one United States port to another would reach the plantation after the fruit had been cut or after the steamer had loaded and departed, resulting in large losses to the Company. Faster and more reliable communication was obviously very vital to the successful operation of the banana business and the company was therefore prepared to spend large sums of money for establishing good communications between its various units.

The original receivers at these four stations were the DeForest two and three slide tuner type with the old "Goo" responders which were later replaced by electrolytic detectors of the Shoemaker and Fessenden types.

Each station was equipped with its own primary source of power consisting of internal combustion engines and belt-driven 60 cycle alternators. The Bocas, Limon, Bluefields and Rama stations were operated under the direct supervision of Mr. H. O. Easton who was one of the first installers and operators employed by the American DeForest Wireless Company.

This early network greatly improved interdivisional communication. However, communication with the United States had to be improved. Mr. Preston was now president of the United Fruit Company and Minor C. Keith was vice-president. They decided that the interests of the company, as well as the United States, demanded improved communication facilities between the States and Central America. It was their ambition to connect all the countries of Central America and Columbia, South America, by wireless with the United States. The Board of Directors of the United Fruit Company authorized equipment of the Company's steamships and the establishment of a station at New Orleans, Louisiana. Accordingly, in 1907 the United Fruit Company purchased the United Wireless Telegraph Company's station at New Orleans which was located on the roof of the Hibernia Bank Building. This station was shortly thereafter moved to the outskirts of the city and enlarged. The United Wireless Company's station at Burwood, Louisiana, near the Southwest pass at the mouth of the Mississippi River was also purchased, primarily for communication with ships. In the same year, 1907, Musgrave, whose headquarters were now in New Orleans, went to New York and contacted Harry Shoemaker, then Chief Engineer of the International Telegraph Construction Company, and purchased from him a 10 KW 60 cycle spark equipment for installation at Swan Island. According to the new plans, Swan Island was to be the relay point between the Central American stations and New Orleans. The Limon Station was improved and enlarged for the purpose of communicating with Swan Island. Swan Island is about ninety miles off the coast of Honduras. It is a little island two miles long and about one-half mile wide. It was owned by the Swan Island Commercial Company from whom a twenty-five acre tract was obtained on a long-term lease. The waters around Swan Island shoal rapidly and ships are therefore unable to approach closer than about a mile off the beach. The construction of the wireless station on Swan Island presented many difficulties. Ships stopped there occasionally at irregular intervals to pick up coconuts and phosphate for the Swan Island Commercial Company whose interests on the island were in charge of a man named Captain Adams. The only other inhabitants of the island were Grand Cayman laborers who worked for Adams. A vessel was chartered to carry all the equipment and construction materials for the new station, including tower steel, oil and water storage tanks, engines, generators, etc. A construction gang was sent down on the same vessel. All material and equipment had to be lightered ashore through the open sea. Construction of the station required eight months and it was completed and placed in operation during the latter part of 1907.

In those days comparatively little was known about the signal fields required to establish reliable communication over given distances. Development proceeded largely on the cut and try basis. It was observed that Swan Island could communicate with both New Orleans and Port Limon under favorable conditions at certain seasons of the year and communication was unreliable during heavy static periods. The heavy static period prevailed for about nine months of the year during the rainy season and it was also observed that static was particularly heavy in the tropics on the longer wave lengths. It became apparent that the 10KW Shoemaker transmitter was of insufficient power to maintain reliable contact with New Orleans throughout the year.

Late in 1907 or early in 1908 Musgrave contacted Colonel John Firth who was at that time selling agent for Professor Picard's newly invented crystal detectors. Through Col. Firth, Musgrave met George S. Davis who was then in charge of the United States Navy Radio Station at Brooklyn Navy Yard. Davis, in his capacity as instructor of the Navy Wireless School and as manager of the Navy Yard Wireless Station, had been testing various types of equipment submitted to the Navy Department for test. As a result of this meeting with Davis, Musgrave met Professor Fessenden who had conducted successful tests between his station at Brant Rock, Massachusetts, and Machrihanish, Scotland.

It had been observed at Swan Island and Port Limon that the signals from Fessenden's 500 cycle synchronous rotary spark transmitters at Brant Rock, Massachusetts, carried better through static conditions than the earlier 60 cycle fixed spark transmitters. The Company then purchased from Fessenden two 25 KW 50 cycle synchronous rotary spark transmitters, one for installation at New Orleans and the other to be installed at Cape San Antonio, Cuba, as a second relay point between Swan Island and New Orleans.



George Schley Davis

1884 — 1924

While "Mack" Musgrave was called the "Father of Wireless" in the Tropics and the "Marconi" of the United Fruit Company's venture into Communications, George Schley Davis, brought by "Mack" to UFCO into his assistant in 1909 became the "De Forest" who modernized the company's communication system — adding tubes of the type invented by Dr. Lee De Forest as the "finishing touch" to a highly efficient system.

Mr. Davis was born Oct. 1 1884 in North Platte, Nebraska. In 1907 — 1908 he was instructor of the U.S. Navy Wireless School, in charge of Navy Wireless Station at Brooklyn N.Y. Navy Yard and also the testing of various types of equipment submitted to the Navy Department. At this time "Mack" Musgrave met Davis through Col. John Firth. Mr. Davis introduced Musgrave to Prof. Reginald Fessenden who was also an early day wireless pioneer.

Early in 1909, due to growth of the wireless program, Musgrave needed an assistant. He persuaded Davis to obtain a release from the Navy and join the United Fruit Company which he did Sept. 29 1909 in New Orleans, La. Late in 1911 Mack Musgrave requested leave of absence which was granted by UFCO appointed Mr. Davis as General Supt. of Wireless. Davis promptly organized a separate Wireless Department with headquarters in New York. He was appointed General Manager, Oct. 1 1911.

Under Davis' management, the United Fruit wireless system grew and expanded. In 1913, a subsidiary — TROPICAL RADIO TELEGRAPH CO was formed under the laws of Delaware to handle communication needs of the Company and the general public. In 1921 he initiated a \$5 million modernization program to replace all spark transmitters with modern vacuum tube long-wave equipment. Mr. Davis was elected President of Tropical; a Vice President and Director of United Fruit; a Director of Radio Corp. of America and the Wireless Specialty Apparatus Company. He was a "Fellow" member of I.R.E.

Mr. Davis died Oct. 10 1926 at the age of 42 but he lived to see the program completed, giving United Fruit and the general public reliable 24-hour service between the States and Central America.

Picture from collection of Charles Cohlill Harris — published Sept. 1922 issue of "Radio Broadcast" magazine. Thanks to Member Raymond B. Jewett (who worked at WBF from 1927-1931 and HPC 1934-35). Ray has furnished considerable copy for use in this issue. — 30 —

Cape San Antonio is at the extreme western end of Cuba, and was to be relay point between New Orleans and Swan Island. The only site available for a radio station was forty miles from the nearest native habitation and fifty miles from the nearest railroad. The Cape was infested with mosquitoes, sand flies, chiggers and many other pests. Construction facilities were entirely lacking. Rock for concrete had to be hauled a considerable distance and then broken by hand. Beach sand from which salt was washed was used for concrete.

All materials and equipment, including steel for a single 250-foot tower, were shipped by steamer from Baltimore to Havana where they were transferred to a chartered schooner and taken to Cape San. As was the case at Swan Island, everything had to be lightered ashore in small boats and lighters towed through the open sea. The equipment was shipped during the



TRT: Historical Paper - Harris



Wm. Edgar Beakes

1880-1951

William Edgar "Bill" Beakes was born May 21 1880 in Newburgh N.Y. about the turn of the century. He was in the U.S. Army Signal Corps in the Philippines. In 1904 he joined Prof. Reginald Fessenden in wireless development at Brant Rock, Mass. and was sent to Machrihanish, Scotland to build and operate a large station for Fessenden's first trans Atlantic transmissions which took place 1906-1907. He later worked with George S. Davis on Fessenden's U.S. Navy installations and was later sent to Central America to study United Fruit's wireless requirements. Beakes held a number of early patents on wireless equipment, including the Ferro-Silicon and Antimony detectors, improvements to synchronous rotary spark gap, a sub-soil antenna and a transmitting antenna.

Mr. Beakes left Fessenden to join United Fruit on Dec. 11 1912 at the invitation of George S. Davis and was appointed Chief Engineer, Wireless Department. He was also Chief Engineer of Tropical Radio Telegraph Co., where a subsidiary was formed in 1913. In 1927, following the death of Davis, he was appointed General Manager of UF Wireless and Tropical Radio. He was elected Vice President and General Manager of Tropical May 5 1930 and President and General Manager on February 15 1939. In May 1943 he was awarded the Marconi Memorial Medal of Achievement. He was a Lt. Comdr. (Ret.) U.S. Naval Reserve. He retired June 1 1945 and died in Florida March 30 1951. Photo from Charles H. Harris collection - taken in 1928.

(Continued from Page 25)

latter part of 1908 and the station was completed during the summer of 1909. In the meantime, the other new Fessenden 25 KW spark transmitter had been installed at New Orleans so that as soon as the Cape San Antonio station was completed, a circuit was established with New Orleans. The distance between these two points is about six hundred miles and service was fairly reliable for about six months of the year. But it developed that even with the Cape San Antonio and Swan Island relay points, the Company could not maintain uninterrupted hourly communication between the United States and Central America.

In 1908, a number of Fessenden 2 KW 500 cycle synchronous rotary spark transmitters were purchased for installation on the Company's ships. These were installed in 1909 under the supervision of Mr. W. E. Beakes who today (1941) is President of the Tropical Radio Telegraph Company. Mr. Beakes was a young engineer with Fessenden between 1903 and 1912 who worked closely with the inventor in his early Transatlantic transmission experiments. He was sent to Machrihanish, Scotland,

to establish and manage the test station erected there for transmission to Fessenden's Brant Rock, Massachusetts, station, and later Mr. Beakes handled the early Fessenden installations for the Fruit Company.

All the Company's steamships were now equipped with wireless apparatus and it was at this time that the Company conceived the idea of a part cable and part radio route for messages between the United States and Central America to tide over until better wireless equipment could be developed and installed at its stations for reliable hourly communication.

It was previously mentioned that there was a cable station at Colon, Panama, prior to 1904. By the new route messages were sent from the United States by cable to Colon at which point they were transferred to one of the Company's ships lying at the dock in Colon. The ship then passed the message to Bocas or Limon. Messages for Bluefields and Rama were relayed by Bocas and Limon. The Company's steamship schedules were such that a vessel was always at the dock at Colon. Thus this route could be used during periods when the wireless route through New Orleans was interrupted by heavy static or poor transmission. Messages originating at the Company's offices in Central America destined to the United States were transmitted to the ship in Colon at which point they were transferred to the cable. This route was first established in 1909 and continued to be used until laws or regulations prohibited transmissions by a ship in Colon Harbor. About 1912, the U.S. Navy constructed its own radio station at Cristobal, Canal Zone. The same route was still used but messages were transmitted to the Colon Navy Station instead of to one of the Company's ships at dock.

During the Nicaraguan revolution of 1909 against President Zelaya, the cable connection between Nicaragua and the United States and Europe was interrupted. However, the "via Colon" radio route using Company's ships in port at Colon provided the only communication between Nicaragua and the outside world. The importance of this route was thus emphasized and the Company proceeded to obtain the best operators available for shipboard assignments since, as can be appreciated, operating while at dock in Colon was not an easy assignment due to noise from deck winches, cargo handling and heavy static. The Colon-Port Limon radio route became one of the fastest and most accurate telegraphic routes in the world. It was during this period that the Company established a standard requirement for transcription of radio messages by its operators directly on the typewriter. While typewriter transcription had been used in wire telegraph offices for some time, this is the earliest adoption of typewriters as standard equipment for ship-shore communications, so far as is known. The typewriter became an essential as a time saving factor in the receipt and delivery of wireless messages.

The Cape San Antonio station was partially blown down by a hurricane in the latter part of 1909. It was rebuilt but was seriously damaged by another hurricane the following year. The station was again rebuilt and remained in service until August, 1915, when a very severe hurricane swept the western end of Cuba and completely demolished the station. It was in this storm that the Company's steamer "Merrowyne" disappeared, with no trace of wreckage ever having been found. The western tip of Cuba appeared to be in the center of the hurricane path since many of the West Indian hurricanes sweep up the Yucatan Channel. The Company decided to move the Cape San Antonio station about fifty miles east out of the hurricane path, but the Cuban government refused to grant a permit to move the station and as a result it was never rebuilt.

Early in 1909 the Company officials were cognizant of the importance and permanence of radio communication as a part of the fruit business. The wireless construction program had reached a point where additional trained personnel was needed. Mr. Musgrave, who up to that time had fathered the application of wireless communication to the Company's business, persuaded George S. Davis to join his organization as his assistant. Mr. Davis secured a release from the Navy Department and joined the Company in September 1909. His first work was to organize a wireless department as a distinct and separate unit apart from the electrical department, following which a program was laid out for extension of facilities; also, a program of experimental work and tests. Following this, what is believed to have been the first commercial use of the famous Fessenden-Heterodyne invention was applied between Cape San Antonio and New Orleans stations during 1910 and 1911. New and improved receiving equipment was installed at all stations during this period and new transmitting equipment, with improved antennas, was installed at Port Limon and Bocas.

Picture #4 shows a map of the system operated by the United Fruit Company's Wireless Department, in 1910. It will be observed that communication with Santa Marta, Colombia, Puerto Barrios, Guatemala, and Belize, British Honduras, was possible through ships lying at docks in these ports in the same manner as previously established at Colon. Some of the long circuits shown on this map functioned only during favorable conditions. In 1911, the system comprised the New Orleans and Southwest Pass, Louisiana, stations, call letters HB and SW, respectively.

the Cape San Antonio, Cuba, station, call letters UU; Swan Island, call US; Bluefields, Nicaragua, call Q; Bocas del Toro, Panama, call B; and Port Limon, Costa Rica, call X. Stations were proposed for Santa Marta, Colombia; Colon, Panama; Puerto Barrios, Guatemala; and Belize, Honduras. By this time twenty-one vessels of the Company's fleet were radio equipped;

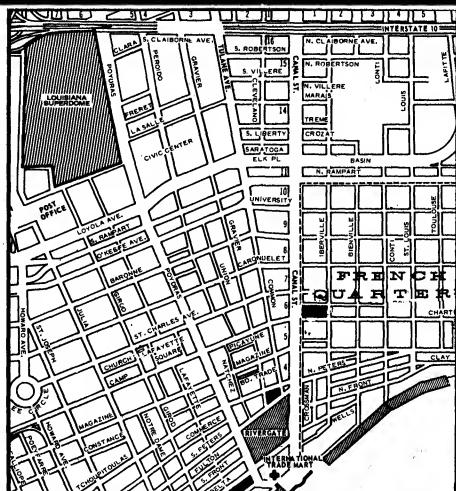
Mr. Musgrave resigned from the Company in the latter part of 1911 and went to Alaska. Two years later he returned to Seattle where he died. Thus, it was due to his perseverance in the face of the discouraging difficulties of the pioneer that the groundwork was laid for our important radio communications system which links together the Central American countries and the United States. Upon Mr. Musgrave's resignation, George S. Davis was appointed General Superintendent of the Wireless Department and headquarters were moved from New Orleans to New York.

As previously mentioned, Mr. Beakes was working with Prof. Fessenden between 1903 and 1912. Prior to the purchase of the Fessenden transmitters for ship stations, Mr. Beakes was sent to Central America by Prof. Fessenden to study the United Company's wireless requirements and he had also previously worked with Davis in Fessenden - U.S. Navy installations. Mr. Davis invited Mr. Beakes to join the United Fruit Company in 1912 and he was made Chief Engineer of the Tropical Radio Telegraph Company when the subsidiary was incorporated in 1913. Mr. Beakes holds a number of early patents on wireless equipment among which are the Ferro-Silicon and Antimony Detectors which held adjustments during heavy atmospherics better than other detectors at that time. He developed and improved the synchronous rotary spark gap. Another of his patents pertains to a sub-soil antenna and still another one covers a transmitting antenna which was later well adapted to short wave transmission.

Expansion and improvements continued. In 1911, some of the New Orleans and Cape San Antonio equipment was obsolete, and since these stations did not meet the requirements of continuous hourly service, it was decided to select a new site for the New Orleans Station, re-equip it with more powerful and modern transmitters. It was also planned to rebuild and re-equip Swan Island and to build a new high-powered station at Santa Marta, Colombia, which had become an important fruit port. A contract was entered into with the Marconi Wireless Company of America to furnish for each of these stations 50 KW synchronous rotary spark transmitters. On the new New Orleans site four-inch tubular steel guyed masts were erected in a rectangle 600 by 300 feet. The transmitting antenna consisted of twenty wires, running with the 600-foot dimension. Picture No. 5 shows the new masts and buildings as of 1912 at City Park, New Orleans.

The Swan Island site was enlarged and four self-supporting 250-foot steel towers were erected for an antenna identical to that at New Orleans. New and larger buildings were put up, constructed of steel frames and corrugated asbestos walls and roofs. Larger power generating equipment also had to be provided. (Pictures Nos. 6, 7, 8 and 9) A hurricane hit Swan in 1914, dropping one tower. However, service was maintained with jury-rigged antennas until a new tower was erected. A year later - in 1915 - a very severe hurricane struck with 130-mile winds; three towers were destroyed and all cocoanut palm trees

Guide to New Orleans



27



Henry O. Easton

Henry Easton was born December 18 1879 in Mehoopany, Pa. He joined the United Fruit Company, on Mack Musgrave's invitation, in March 1904 as a wireless operator at Port Limon, Costa Rica. One of the legendary operators for United Fruit - an expert telegrapher in the days of the "Boomer Operator" and one of the earliest operators and installers for the American De Forest Co. When Mack Musgrave purchased two stations, Mr. Easton made those installations. Upon completion in February 1906, Bluefields and Rama Nicaragua and Limon and Bocas del Toro, Panama were placed under his supervision.

On October 1 1916 Mr. Easton was appointed Superintendent of Tropical Stations with headquarters in Port Limon. He contributed greatly to the growth and performance of the system, and on May 1, 1925 he was appointed General Superintendent of Tropical Radio Telegraph Company with headquarters in New Orleans, La.

After 25 years of faithful and efficient service, Mr. Easton left the Company of Dec. 31 1929. He entered the real estate business with his brother from Shreveport, La., and after his brother's death a few years later he went to Pittsburgh, Pa. to join his sister. The picture is a snap shot taken in 1917.

flattened. The stubs of many palm trees may be seen in the photo labelled No. 6 in the right center of the picture. There was relatively little damage to buildings by this storm due to their steel frames and corrugated asbestos roofs and walls. This was the same hurricane that passed up the Yucatan Channel and completely destroyed our Cape San Antonio Cuba station, as mentioned previously.

In 1914, a new station was built at Tela, Honduras, and another at Puerto Castilla, Honduras, in 1917. By 1916 a number of the Company's ships were equipped with quenched spark transmitters manufactured by the Wireless Specialty Apparatus Company. Prior to that time a number of IP-76 receivers, with which some of you are familiar, were purchased and installed in both ship and shore stations. In 1915, Wireless Specialty double-deck type tuners were purchased and installed aboard ship. Between 1910 and 1915 DeForest had made considerable progress with his vacuum tube detector and Roy Wiegant had developed the so-called "X" circuit receiver employing a vacuum tube. This was essentially a tuned grid-tuned plate regenerative form of receiver. Patent restrictions prevented general application of the vacuum tube to commercial wireless requirements but many of the operators employed aboard ship and at shore stations purchased DeForest tubes and made up their own receivers or detectors and used them in the station to which they were assigned. I made a detector employing the DeForest double filament cylindrical-shaped tube and used it aboard ship in 1916 and 1917. It was used as a non-regenerative detector in place of the crystal detector with which ship stations were normally equipped. This detector was mounted in a small oak box measuring approximately 8 inches by 6 inches by 5 inches and had self-contained flashlight "B" batteries. The ship's emergency storage cells were used for the filament battery.

(Continued on Page 28)

S.O.



W.P.

TRT. Historical Paper - Harris

(Continued from Page 27)

I had been the wireless operator aboard the oil tanker "Communipaw" (Standard of Jersey) for about 8 months. In January 1917 we sailed from Philadelphia for Arhus, Denmark. We were about 24 hours out, loaded and kite-ing before a westerly gale, when I heard the old Marconi station at Wellfleet, Cape Cod, sending the general call to all ship stations, followed by broadcast messages from owners to all U.S. registry and neutral vessels headed for the blockade zone calling them back immediately to U.S. and western Atlantic ports. Germany had just declared unconditional blockade around the British Isles in disregard to neutrality laws. I intercepted the message addressed to our skipper, who promptly put our ship into the teeth of the gale; it took us 72 hours from our position 24 hours out to get to New York harbor. I recall reflecting at the time how fortunate it was I was using my DeForest audion detector, for without it I might not have been able to copy the Wellfleet station's marginal signals. Not many weeks later, April 6, 1917, the U.S. was at war with Germany and dreaded World War I had started.

The Company system as developed by 1915 furnished greatly improved communication between the States and Central America though frequent interruptions occurred during the heavy static season. I was stationed at Swan Island from 1918 until early 1921 and recall numerous instances when no traffic could be moved to or from New Orleans for several days at a time. It was often necessary to send each letter of a word twenty times or more. The receiving station acknowledged receipt of each letter by making a long dash. We frequently worked the clock around moving traffic under terrific static conditions. But operators of that day were trained under the slogan "keep traffic moving accurately." A business man or firm did not send a message unless time was of utmost importance or value. Rates then were high. There were no deferred classifications and all wireless messages took cable count.

By 1915 or 1916 our Company had an appreciable investment in spark equipment. Our engineers and executives visualized the possible development of vacuum tubes for use in transmission and they decided not to go into arc and alternator equipment which was developed and applied by other communications companies between 1915 and 1920. Until 1920 the parent company's dream of a Central American radio communication network providing reliable uninterrupted service had not been realized but Mr. Preston's early plans for linking all the Central American countries were rounded out by Mr. Davis and Mr. Beakes. They had followed closely the development of the vacuum tube and in 1921 a contract was closed with RCA and the General Electric Company for the purchase of seven 20 KW vacuum tube transmitters. This power rating was based on transmitter output capability. The earlier spark transmitted ratings were based on power input to the high tension transformer. By 1920 radio engineering was quite well established and some data had been accumulated on signal fields required for reliable communication over given distances on long waves. Some information was also available on static intensities. Twenty kilowatts of antenna power appeared to be sufficient to insure reliable twenty-



IMPORTANT NOTE ABOUT PICTURES

QUALITY - Many of the photographs used are 'copies of copies' from pictures taken from 50 to 75 years ago and most yellow with age and other imperfections of the 'state of the art' of that era - especially in the tropics. It does preserve in picture form, views of stations and equipment used in days long ago albeit with some sacrifice in clarity which can not be helped.

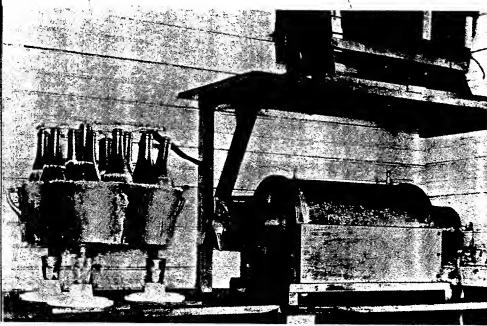
PLACEMENT OF PICTURES: The pictures used from Mr. Harris' Historical Paper delivered before the Boston section of I.R.E. on Nov. 14, 1941 were originally slides and numbered for the 'illustrated' talk presented that date. Many of the pictures will be found throughout the JOURNAL and numbered for reference in this article. Some will be shown under alphabetical order of UFC stations. On a few the reference number has been dropped such as the Map of Wireless Stations of UFC in 1910 as shown on the front page of this Journal.

four hour service between New Orleans and tropical points without the necessity of a midway relay point such as Swan Island. The 1921 program visualized installation of one of these new 20 KW tube transmitters at a new terminal station to be established near Miami, Florida, and one each at New Orleans, Puerto Barrios, Guatemala; Tegucigalpa, Honduras; Managua, Nicaragua; Cartago, Costa Rica; and Almirante, Panama. These transmitters were to work into multiple tuned antennas employing 400-foot steel towers. The plans included new buildings, sites, generating equipment and elaborate ground systems. Construction work got underway in 1921 and all installations were completed by 1925.

Pictures 10 to 14, inclusive, illustrate typical installations made between 1921 and 1925 at the points previously mentioned. These stations operated in the frequency range 60 to 100 kc. During the period the old Bluefields Station was rebuilt and equipped with smaller tube transmitters and modern receivers; as were the stations at Tela and Puerto Castilla, Honduras; a new station was built at Preston, Cuba, in 1927. This system finally provided reliable twenty-four hour communication between the United States and Central America. It was a costly system to operate. The water-cooled tubes used in the power amplifiers of the large transmitters cost about five hundred dollars each at that time and power expense also became an appreciable percentage of operating costs. But since the service had been extended to the capitals of each of the Central American republics, new sources of message revenue were tapped and Tropical pursued an aggressive public communication service policy. Commercial activities were handled by Mr. R. V. Howley, an old Fruit Company man, and now our Vice-President. While our system was originally established to provide communication for the United Fruit Company, it was from the beginning in 1904 made available to the general public in the Central American areas which we served and which had no other means of communication. In line with the new commercial policy a circuit was opened with Bogota, Colombia, and others later with Havana, Cuba, and San Juan, Puerto Rico. Still later, circuits were established with Mexico; Nassau, Bahamas; and Belize, British Honduras. All these stations were operated by other agencies. By 1925 all of the old spark equipment had been replaced and the Swan Island station was closed December 5, 1927. The old original Bocas station, located on Maca Hill, was dismantled in 1921 following the erection of a new station at Almirante about twelve miles away at the head of Almirante Bay.

The new long wave tube installations had hardly been completed when short wave transmission appeared on the horizon. Our company began experiments with short wave transmission in 1926 and by 1928 had paralleled many of its long wave circuits with circuits operated on high frequencies employing appreciably lower transmitting powers. A station at Boston was acquired March 27, 1920, for communication with ships at sea. This was the old Fessenden experimental station located on the Board of Trade Building at 131 State Street and used for experimental high frequency alternator transmissions to Bush Terminal, New York. Our original equipment there consisted of Wireless Specialty spark transmitter which was replaced in 1923 with a 1 KW tube transmitter of General Electric manufacture. On December 1, 1922, Tropical leased from the Navy the old Marconi Station at Miami Beach, Florida. It had been sold to the Navy when the United States entered World War I. This station was later relinquished when we built the large terminal station located at Hialeah some ten miles northwest of Miami.

In 1926 and 1927, experimental short wave circuits were established between the Boston and Miami Stations and between Miami and New Orleans Stations. In 1928, a number of RCA-General Electric high frequency tube transmitters were purchased, two of which were installed in New Orleans, and one each at Managua, Nicaragua, and Cartago, Costa Rica. In 1930 a new high frequency station was established in Panama City. It was also equipped with one of these high frequency trans-



[3] BLUEFIELDS, NICARAGUA - Wireless Station - Built in 1906

This picture shows famous Bluefields emergency condenser which restored service after failure of American-made Leyden Jar condensers. It was made of empty European champagne bottles filled with saltwater and set in an old iron cook vessel; the iron vessel was insulated from the table with old bar whiskey glasses. European glass was superior to American glass. There was an ample supply of bottles and glasses in Bluefields if replacements were needed; however, this condenser remained in service from 1908 until the station was dismantled in 1925.

(Continued Next Page)

mitters and several smaller ones. In 1929 we carried on some experimental short wave broadcasting from our Tegucigalpa, Honduras, station. A high frequency transmitting station was established on the roof of 1 Federal Street, Boston, in 1928 and direct circuits between Boston and various Tropical points were put into operation. The old 131 State Street station as well as the one on the roof at 1 Federal Street were replaced in 1930 by a new large station located at Hingham, twenty miles south of Boston. The 20 KW long wave tube transmitter originally installed at Puerto Barrios, Guatemala, in 1924, was shipped to Boston and redesigned and rebuilt for operation on the somewhat higher frequencies used in the marine service. This transmitter was ultimately crystal controlled in about 1932 and was the first long wave transmitter on the Atlantic coast employing quartz crystal frequency control. The frequencies thus controlled were 147, 436 and 500 kc. In 1932, a new high frequency station was established at Guatemala City, Guatemala, and opened to traffic January 23, 1933.

The spark transmitters aboard ship had been replaced with vacuum tube transmitters prior to 1927. Several years later high frequency transmitters and receivers were added to ship installations.

In 1932, in collaboration with the American Telephone and Telegraph Company, Tropical Radio entered the radiotelephone field in Central America. Here again our company provided the first radiotelephone service available in Central America. The A.T. & T. Company established its Caribbean Terminal Station on our property at Hialeah, Florida. Tropical purchased equipment for its Central American stations from the Western Electric Company. The transmitters, known as the U-Spec type, had a power output rating of 400 watts fully modulated. These were conventional double sideband transmitters. The transmitters operated into rhombic antennas directed on Hialeah and the receivers, known as the Western Electric 13 Type, were used with rhombic receiving antennas directed on Hialeah, Florida. At Panama City our station had moved to new transmitting and receiving sites about ten miles from the city. Control terminal equipment was provided for connecting the four-wire radiotelephone circuit to the two-wire central office telephone exchange at Panama City. Teleprinters were installed to transfer telegraph message traffic between our city delivery office and the control and receiving station. The other points to which radiotelephone service was established were Cartago, Costa Rica; Managua, Nicaragua; Tegucigalpa, Honduras; La Lima, Honduras; and Guatemala City, Guatemala. All these stations furnished service to the public on a four-wire basis to telephone booths located at convenient points in each city. The circuits to all these points with the exception of Panama are still being operated with the original equipment and they are reasonably reliable. Telephone service with Central America is, of course, available to and from all points within the United States as well as some overseas points via the long lines toll service of the American Telephone and Telegraph Company and their Caribbean Terminal Station at Hialeah. A.T. & T. has also established telephone circuits between Hialeah and the island of Jamaica; to Nassau, Bahamas; the Dominican Republic; Venezuela, Colombia, and to San Juan, Puerto Rico. During the

PANAMA T.R.T.

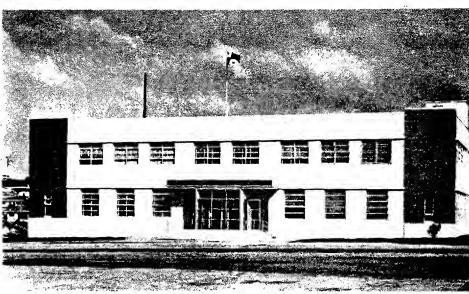


PANAMA CITY - 1958

Traffic Control Center, showing operations largely converted to teletype operations. Station located in Avenida Samuel Lewis building located in city suburbs. Photo from collection of C. C. Harris

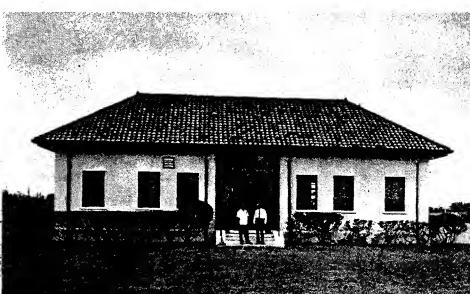


PANAMA CITY - Exterior of "Down Town" Office of earlier day
Picture from collection of Marvin Aimes Jr.



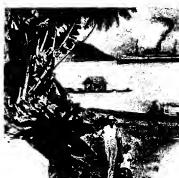
PANAMA CITY - PANAMA STATION - 1958

Traffic Control Center on Avenida Samuel Lewis. Constructed in 1956.
C.C. Harris Photo



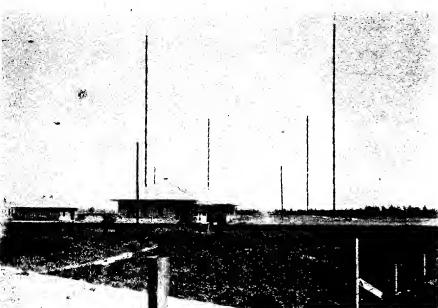
PANAMA CITY TRANSMITTING PLANT

The Campo Pina Transmitting Plant, constructed in 1950. Picture from C. C. Harris Collection.



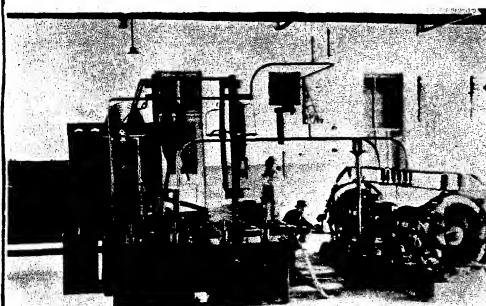
EARLY 'WNU' NOLA

HISTORICAL PAPER C.C. HARRIS



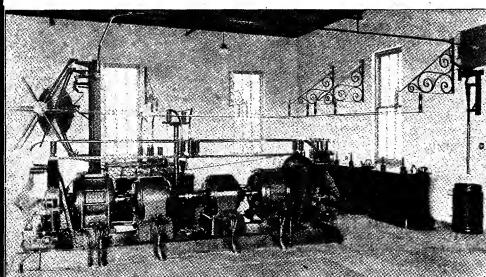
NEW ORLEANS WIRELESS - WNU - 1912

This station was built by United Fruit Company in 1912 in the City Park at New Orleans to replace the first station on the roof of the Hibernia Bank which was purchased in 1907 from the United Wireless telegraph Co. This picture shows store house, operating house, generator house and four 320-foot tubular steel masts CCH Photo.



"WNU" - NEW ORLEANS - TRANSMITTER

This picture from the collection of C. C. Harris was taken circa 1915, showing the Transmitter Room with its two 40 KW synchronous spark gap wireless transmitters. [5]



The Generator Room of the New Orleans (WNU) Radio Station showing two 40 K.W. Units. Taken circa 1915

HISTORICAL PAPER C.C. HARRIS

(Continued from Page 29)

period 1930 to 1935, Tropical established a radiotelephone network within Central America linking together by telephone practically all points which they were serving by radiotelephone.

Between 1935 and 1940, improvements were constantly being made in our facilities - particularly in transmitters, receivers and antennas. High frequency telegraph transmitters were redesigned and rebuilt at a number of stations to employ later types of tubes and more efficient performance. High frequency transmitter power outputs were increased and directional antenna systems were constructed for both transmission and reception. These improvements were for the purpose of getting our circuits ready for the time when we would have to adopt automatic methods of handling message traffic. An experimental radio printer circuit was set up between Hingham and La Lima, Honduras, in 1935 for the purpose of obtaining data for future use.

Most of our message traffic is handled manually, though automatic tape transmission has been in use on important circuits at the Panama City and Guatemala City stations and for press transmission from New Orleans for several years.

To speed up the remaining necessary improvements to meet existing and anticipated traffic demands, an extensive program was prepared early in 1940. Our Engineering Department was reorganized at that time to facilitate carrying out the remaining plant work and to accomplish better coordination of plant facilities and operation.

A large part of the 1940 program covered more modern facilities for our Panama City Station. In order to meet service demands and cable competition, we decided to establish a "City Traffic Office" set-up, whereby all operating would be carried on from our office in the business district of Panama. This would permit elimination of the Teletype link and double handling of all traffic between the receiving and control station nine miles outside the city and our city pickup and delivery office. Such a set-up requires a diversity receiving system for the longer circuits and the wire facilities make a voice frequency carrier telegraph system between the transmitting and receiving stations and the city a necessity for automatic retransmission of received traffic to the city, as well as for controlling the transmitters from the City Office.

Accordingly, a new receiving antenna system consisting of seven horizontal rhombics was designed and constructed during the dry season, January to March 1941. This antenna layout provides two unit diversity, largely on the phrase diversity principle, from five stations and normal single antenna reception from six other stations for which the diversity system is not now required. All antennas are coupled with special transformer units to 70 Ohms copper-ceramic nitrogen-filled coaxial transmission lines.

The telegraph receiving installation will consist of a bank of about twenty single frequency crystal controlled receivers and twelve diversity combining units. Both the receivers and diversity combining units have been developed by us by the National Company and are under construction by them. We expect to have the new system in operation early in 1942.

Early in 1940 it was apparent that improvements in our overseas telephone facilities at Panama would be necessary to meet the increasing demand for service, particularly to the States as a result of the Defense Activities at the Panama Canal. In collaboration with the American Telephone and Telegraph Company, plans were made about the middle of 1940, to establish a direct telephone circuit between New York and Panama. The A.T. & T. radio terminal was to be at Ocean Gate, New Jersey, for transmission and at Manahawkin, New Jersey, for reception. Plans embodied the latest type of Bell Laboratories design - Western Electric constructed single sideband transmitters and receivers and the latest type of automatic voice terminal and privacy equipment, including sending and receiving Vodags, noise reducers, ringing equipment and our own PBX board at Panama for connection with the Canal Zone and Panama City telephone exchanges.

The new installation at Panama was completed and opened to service with New York, July 11, 1941, using one channel on the carrier frequency. Equipment for Twin Channel operation is on order with the manufacturer and we hope to have the complete twin channel circuits available early in 1942. Twin channel operation has been used since September, with older type privacy and terminal equipment for passing tickets while calls are going through on the "A" channel.

The single sideband receiver operates from a single unit single wire rhombic antenna directed on Ocean Gate, New Jersey. It embodies automatic tuning facilities and operates unattended a large part of the time.

(Continued Next Page)

Early Days of 'Tropical Radio'—Concludes Paper Presented in 1941

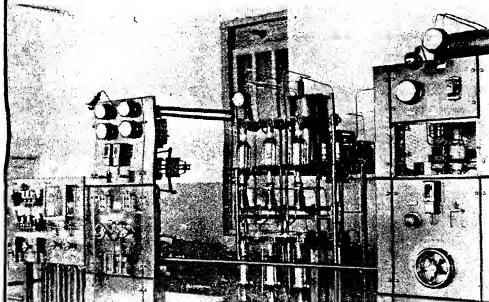
By Charles C. Harris, Chief Engineer

The transmitter operates into a twin rhombic antenna directed on Manahawkin, New Jersey, which provides an overall gain of approximately 20 DB. Measurements made by the American Telephone and Telegraph Company at Manahawkin indicate the twin antenna furnishes a gain of five to six DB over a single antenna unit. Each unit is a three-curtain antenna and is fed by its own transmission line from the transmitter. The twin lines must be of equal electrical lengths in order to preserve an alignment of the beam with the physical axis of the system and to avoid other difficulties due to unequal phase shifts down the line. This imposes rather rigid constructional limitations. Each antenna of the twin is terminated at its front-end in a 600 Ohm 1000 watt special hydrogen-filled non-reactive resistor developed by the Bell Laboratories.

The original dream of Messrs. Musgrave, Preston, Keith and Davis of continuous communication between all of Central America and the United States of America has been realized and probably far exceeded. The present organization visualizes still greater expansion and development for the future.

Our system today comprises nineteen owned shore stations in Central America and the West Indies and approximately one hundred ship stations. It is handling approximately 7,600,000 words of paid public message traffic, 1,500,000 words of press transmissions and approximately 182,000 minutes of radiotelephone calls.

Written November, 1941



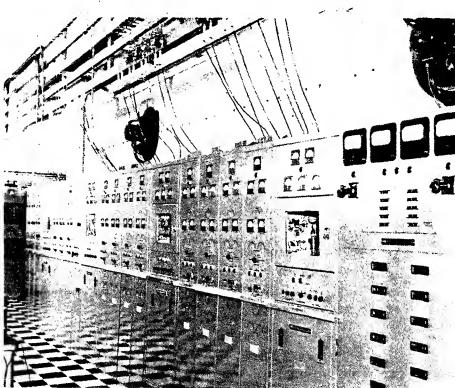
"WNU" TRANSMITTERS - TUBE EQUIPMENT, CIRCA 1924

Part of G.E. ET-3624, 20-KW "Long-wave" Vacuum Tube transmitter installed. Shown are power panel, UV-219 Kenertron Rectifier and 1 KW Master Oscillator which drives 20 KW Power Amplifier. (C.C. Harris - Photo)



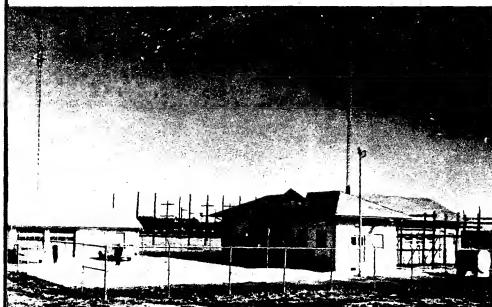
RECEIVING STATION "WNU" 1958

Picture of the Receiving Station and Traffic Control Center Constructed in 1957 at Pearl River (Photo by Charles C. Harris)



TRANSMITTERS - WNU - 1959

Picture of the Westinghouse Type "MW" Transmitting equipment installed at the Slidell Station. Picture shows the overhead antenna switching frame. (C.C.Harris - Photo)



STATION "WNU" NEW ORLEANS - 1958

Picture of the Transmitting Station constructed in 1957 at Slidell, near New Orleans.



RECEIVING STATION WNU 1959

Picture shows the Traffic Center at Pearl River and Section with teletypewriter installation. (C.C. Harris - Photo)



Still Pioneering in Communications

TRT Telecommunications Corporation

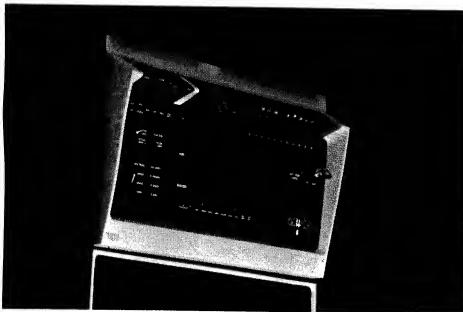
THE NEW LOOK

**WNU**

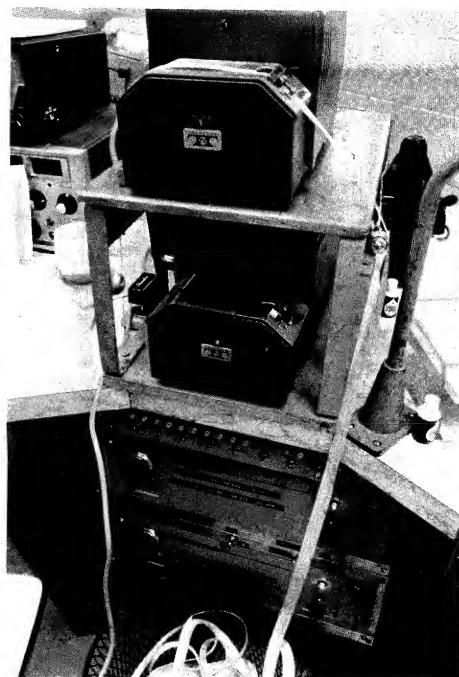
Close up of one position of operational console where Radio Operator, J. Edwards is using an electronic keyer, memory enhanced. Other equipment in picture include are receivers, mini-toggle keyline/Marker controls and automatic electronic channel scanners.

**OPERATIONAL CONSOLE AT WNU**

This is the main operating office at WNU today. It provides capability for nine [9] Radio Operators to work simultaneously with vessels on the High Seas. Pictured (L/R): T. Edge, J. Edwards, C. Sheppard, M. Ethington, B. Crawford, M. Campbell, J. Leake, F. Estrada, B. Norris. The Operators all use the file in center to check various ships traffic awaiting to be "cleared". They work all marine frequencies plus radio-telephone, RTTY, etc. A lot of traffic is still moved by manual CW thought ("Jock" Maclare).

**WAX - FT. LAUDERDALE**

Close up view of D.E.C. "Processor" [PDP 11/70] used to facilitate automatic switching, worldwide at International Facilities station at Fort Lauderdale, Florida.

**WNU**

External view of Slidell Radio Receiving Station and control site located on the Pine Street Extension, Pearl River, L.A.

WNU - SPECIALIZED EQUIPMENT

This is a Baudot/Morse "Convertor" which converts teletype perforated tapes to Morse code, used at WNU for all traffic lists and Weather Broadcast transmissions.

This is the story of TROPICAL RADIO — A pioneer in the development of radio-telephone and radio-telegraph communications in Middle America . . . A business which has grown as the demand for its services has increased . . . A system, hemispheric in scope and world-wide through connections, which progresses and improves with new discoveries in its field.



WNU...

Partial view Slidell Radio's Transmitters and rectifiers. In attendance: Standing - H. Falk, Seated - T. Mulholland.



WNU

Wide angle view of WNU's "Hermes" Directions" - Omni Directional receiving antenna array.



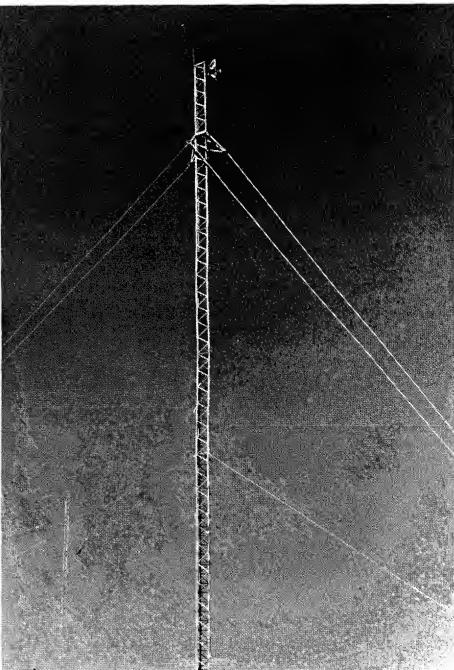
WNU

External view of Slidell Radio Transmitter site, located off Ganse Road, Slidell, LA. In background WNU's 150 ft. towers which support medium frequency 400 foot long double wire "T" antenna. Elsewhere are portions of 'doublets' and rotatable beam.



WAX - FT. LAUDERDALE, FL.

TRT's International message switching system. Through dedicated, Direct traffic trunks from WNU, this modern computerized switching network allows TRT to route messages worldwide, automatically — just minutes after receiving "QSL" from Slidell Radio.



WNU

One leg of Slidell Radio's 75" Microwave antenna system (foreground) Providing for emergency control of transmitters in event of failure of primary control via metallic lines.(background) — Partial of M/F Transmitting antenna.

THANK YOU **TRT** Telecommunications CORPORATION

Pictures used on these two pages were furnished by Peter Scott, Manager - Marine Services of TRT Communications Corp., Miami, Florida. Thanks for permitting us to see the "New Look" of WNU and WAX. W.A.Breniman - Editor



Potpourri of Experiences & Adventure

TROPICAL RADIO TELEGRAPH COMPANY



By-Raymond M. Muro

I joined Tropical Radio September 27, 1923. I had previously applied for employment in July, 1922, after securing my radio license issued by the Department of Commerce later changed to Federal Radio Commission around 1923, then later changed again to the present Federal Communication Commission. TRT suggested I come back after I had at least a year's experience.

In those days we had three radio companies to select a job with other than TRT. They were RCA, Ship Owners Radio Service and Independent Wireless Company.

Since I had to get experience, I applied to Ship Owners Service and was assigned to the sea-going tug *ASCABEL* KOF5, from August 1, 1922 to February 3, 1923. Next I was assigned to the SS CITY OF MIAMI running between Miami and Havana carrying about 300 passengers a trip. I served from February 21, 1923, to April 1, when she went out of service. I then applied to TRT again but they had no openings so I went back to Ship Owners Radio Service and they assigned me the SS LIO KDS5, one of the largest tankers afloat at this time and equipped with a 2 KW Poulsen ARC transmitter. The ARC transmitter operated on 600 meters ICW but was only good for short distances, but was excellent for operating on 1000, 1500 and 1800 2400 meters CW but for one thing we didn't have many land stations guarding 1800 or 2400 meters CW. KFS San Francisco made up for the lack of ARC stations. You could always raise KFS on 1800 or 2400 regardless of where you were. I might say it was the ambition of most radio men to serve on the United Fruit Company ship (TRT) especially the large passenger ships. Mr. H. O. Easton was General Superintendent, New Orleans, Mr. E. L. Commagere was Assistant Superintendent.

My first five years in TRT, I rotated between New Orleans WNU and the TRT ships, usually having to relieve the Chief Operators on vacation or for a trip off.

While assigned to WNU Tropical's big New Orleans station known as the City Park Station, my first assignment was working WBW, Burwood, TRT's marine station at the mouth of the Mississippi River and the marine station for New Orleans. WBW maintained hours from 7 a.m. to midnight. During those hours WBW handled all marine traffic relaying it to New Orleans WNU every 30 minutes on 1500 meters. However, WBW was kept on a speaker in the event it had urgent ship traffic. Eventually WBW was closed and all ship traffic was handled by WNU direct.

The only other circuit at WNU was with Swan Island call letters (US) and located in the Caribbean and operated by TRT. The Islands operators were assigned by New Orleans and served 18 months, the usual tour of duty for the Island. A United Fruit ship called at the Island every three weeks, bringing fuel, food and whatever supplies they required.

TRT usually had a waiting list for operators wanting to go to the Island. Most of them would stay around five years.

I am the last living operator who served at WNU City Park Station during the reign of her big 40 KW spark transmitter. WNU used the 40 KW Sync. Rotary Gap to work Swan Island. This transmitter could be heard around the neighborhood for a distance of a mile or two. The Rotary Electrode was larger than a wagon wheel and when it was being used, the sparks would light up the entire transmitter building. I lived about a mile from the station and practically learned to gain speed in copying code. If I remember correctly, this transmitter was on approximately 3800 meters. During the winter months traffic moved normally but during the summer (static season) when sending code it was necessary at times to send each letter 15 or 20 times. Many days it would be impossible to move traffic. Swan Island was installed to handle United Fruit business to the Tropics, also to handle Belize BH messages who otherwise would have been isolated from the world. Swan Island relayed all traffic to TRT Tela, Honduras, call letters (UC) who in turn passed it on to the stations UA Pto. Castilla, UG Tegucigalpa, Honduras, Lalima, Honduras, Guatemala and Belize. And Fruit ship docked in Pto. Barrios, Guatemala, had to act as the land station receiving and transmitting any United Fruit business working Tela every hour.

Eventually TRT installed 20 KW CW transmitters in New Orleans, Barrios, Tegucigalpa, Almirante Panama, Cartago, Cr., Managua, Nicaragua. These transmitters operated in the neighborhood of 3300 meters. After installation of the 20 KW, New Orleans began handling coffee messages to Columbia, relaying this

traffic through Almirante. Shortly thereafter we began handling commercial traffic to all of the above listed stations.

After the 20 KW CW was installed at New Orleans and Tropics, the need for experienced engineers and radio operators would be necessary in the Tropical stations. WNU became the training station to supply the needed help. We usually had 7 to 10 operators breaking in. With the 20 KW in operation, the receiving station was moved to Shrewsbury, La. where we began more Morse circuits on continuous service with all our Tropical stations. After several years in Shrewsbury we outgrew the one acre of land the receiving station occupied. Since we moved to Shrewsbury we had been experimenting with Printers on Hi-Freq which proved to be very successful. From Shrewsbury we again moved up the river to Harahan, La., where the transmitting station moving further up the river to River Ridge, La. The Harahan station had 32 acres of receiving antennas. Moving to Harahan gave us the needed land to install our new antennas for Hi-Freq. Printer operation.

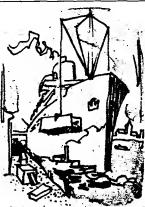
We had the greatest group of men at City Park you could find anywhere. Leon Carrington was Chief Operator, Johnny Hayes, Assistant Chief Operator. Radio operators were William Redd, G. Soney, John MacCallum, Charles Whitney, Bob Brackett, Walter Berridge, Ralph Chamberlain, Tom Dobyns, J. W. Leathers and R. Muro.

Morse (wire) operators were Tony Stoltz, J. Dobbins and Bob Shaw. We had Morse (wire) circuits to the Western Union and Postal Telegraph. Also Morse was used to the United Fruit Company Building on St. Charles Street. About 1927, Printer Circuits to Western Union, Postal and United Fruit were installed.

During World War II on September 7, 1942, WNU Marine facilities were taken over by the United States Coast Guard to handle wartime Marine notices, distress calls, etc. A direct Printer Circuit to Navy Headquarters and Coast Guard Headquarters, Washington, was installed. The Coast Guard also inducted WNU's four Senior Operators into the Coast Guard as Chief Radiomen, R. Muro, L. Hargus, Jim French and Maurice Sazer, later assigning more regular Coast Guard operators. WNU acted as a spy hunting station but most of all to pick the distress calls from ships being torpedoed. Before the Coast Guard requisitioned the station we would copy all SSS sub sighted messages and torpedos and phone them to the Algiers Navy Station. It appeared the Navy Stations also were copying the distress messages but the inexperienced Navy operators were getting their positions incorrect, causing planes and destroyers being sent to the wrong destination. We were sending in the correct positions so the government decided in order to save lives at sea, it would be better if we handled all distress messages. This was told to me by a Captain in the Coast Guard at Headquarters in Washington. The Coast Guard also requisitioned Stations WAX, Miami, Fla., KPH, Portland, Oregon, WSL, New York and KFS, San Francisco, Calif. The Coast Guard Station WNU was instrumental in establishing the first communication with the American Guerrillas (U.S. Marines) on Bataan after the fall of the Philippines. After reporting our contact with the Guerrillas to the Navy/Coast Guard in Washington, they assigned KFS San Francisco to maintain communications.

On January 1, 1946, to May 23, WNU's call letters were changed to NMG until reverting back to WNU, May 24, 1946. On August 17, 1957, WNU moved to its present location at Pearl River, La.





Period 1929 to 1942

Officially I became a member of the TRT family when the company I was with, the Cuyamel Fruit Co., New Orleans, La., was acquired by the United Fruit Co., Boston, MA. This was in 1930. I had joined the Cuyamel Fruit Co. as a R/O in 1929.

My first ship with Cuyamel Fruit was the S/S TOLTEC of Honduran registry, whose radio call letters were HA. This two-letter call signal caused quite a bit of confusion, as all call letters in those days were four letters. (There were Honduras coast stations also with two-letter calls.)

The SS TOLTEC was the first of three refrigerated ships that Cuyamel had ordered from Barclay Curle Co. in Scotland. The SS TOLTEC sailed on her maiden voyage from Scotland in March, 1929. She was followed by the SS AZTEC (R/O Robert H. Phaysey) and the SS MAYA (R/O Milton King). At that time they were the newest and fastest ships built for the banana trade.

Fred Muller was Marine Radio Superintendent in New York City. Later Fred became a Captain in the U.S. Navy. I have never served under a finer individual. Also on the Marine staff in New York City was Capt. "Ebby" (Viggo H. Conradt Eberlin of the Jack Binns chapter).

In the early part of September, 1931, while R/O on the SS TOLTEC, we were diverted to Belize, British Honduras, because this city had been devastated by a hurricane. A tidal wave swept over the city causing the loss of several thousand lives. All communications were out in the city. The SS TOLTEC's radio was the only means of communication with the outside world. Together with 2nd R/O Herman Meyerhoff, we maintained a continuous watch for over 48 hours. We cleared volumes of traffic under the most trying condition of signal fading and heavy static. (Remember these were the days before Short Wave.) All the traffic was routed through TRT station WAX at Hialeah, Florida. For this work we received high commendation from the Governor and Colonial Secretary of British Honduras. (Recently the name was changed to the country of Belize.) The TOLTEC also evacuated many of the survivors to the port of Puerto Cotez, Honduras.

In those days there were many Skippers who had been trained in sail and "Sparks" was not always his favorite officer. However, as the years passed they came to respect us and the work we did. Most of the R/O's were a dedicated bunch and we were proud of our company. The Chief R/O's salary was the grand sum of \$150 per month, which was much higher by far than what some shipping lines were paying.

A couple of the following stories about UFCO skippers may be of interest.

Captain "Hurricane" Harry Spencer was a senior captain and commanded the largest of the UFCO ships. These were first class passenger ships, running to Cuba and Panama. Capt. Spencer had the reputation of being a strict disciplinarian and was noted for his "salty talk." Once when he was casting off the lines of his ship leaving the port of Puerto Limon, Costa Rica, the head steward came rushing down the dock shouting, "Captain, hold everything. We have some additional bags of coffee we want to put aboard." Capt. Spencer, speaking into the bull horn (it could be heard fully a quarter of a mile away) from the wing of the ship's bridge, replied, "You know what you can do with that coffee? Not bag by bag but bean by bean!" He gave orders to let go the lines and the steamed out of port. The passengers chuckled about this for many days after. He was a skipper of the old school but he appreciated the art of radio and was appreciative of the wireless men.

Another Captain in the UFCO was Charlie Glenn. He was a very strick spit-and-polish Master. He was not too popular with the R/O's. He died in Panama and his wish was that he be cremated and his ashes scattered from a UFCO as it passed Cape Hatteras. Our ship happened to be the one that carried Capt. Glenn's ashes. In the first place we were not too pleased when we were mustered on deck at 4 a.m. as we passed Hatteras to throw Capt. Glenn's ashes overboard but when a back draft carried his ashes across our faces we felt that the old skipper was having his last "crack" at us.

TRT/UFCO was a great company, or companies. I mourn the passing of the Great White Fleet. (TRT is still operation, as you know.) I also have fond memories for the wonderful shipmates that lost their lives in World War II. We can be proud of them. ■ 30 ■

Weather Wise



By—Herb Gled

Tropical Radio Telegraph Company was an efficient point-to-point communications network. I am speaking of the mid-1930's when all traffic was handled manually by some really good operators. This was before the advent of RTTY.

The mainstation of the system was located at Hingham, Mass., about twenty miles from Boston. The transmitters were in the 2,500 watt power class and were fed into several rhombic antennae. This was quite convenient because all the points to be contacted were to the south in Central and South America. Through this network of stations the United Fruit Company could keep in constant touch with my many banana plantations.

The Hingham Complex held continuous schedules with Guatemala City, Lalima, Honduras, San Jose, Costa Rica, Santa Marta, Columbia, Panama City, New Orleans and Miami. These large stations relayed to and from the smaller stations in their respective countries.

While at Hingham for a short while to get acquainted with the system, I saw a typical radiogram from Panama handled very quickly. From the time the operator at HPE started sending until the message was received and then punched out on the wire TTY circuit to #1 Federal Street in Boston (UFCO) the time elapsed was about five minutes.

When I went to work for TRT I was told that the way to get ahead with the company was to put in time at one of the tropical stations and work your way up. In 1936 (I was 21 years old at the time) I accepted a post as the second operator in a small two-man station, YNB, Bluefields, Nicaragua. Gene Lester was the Chief Op. It was really light duty. I attended two continuous circuits (YNA Managua and YNE, Puerto Cabezas) from 12:30 to 4:20 p.m. Then after a few beers I returned for about ten minutes to clear all remaining traffic for the night at 6:20 p.m. We then closed down for the night. The whole world could have fallen apart as far as we were concerned because Bluefields had no other contact with the outside world until the next morning.

The worst feature of the job was the weather. It was hot, humid and rained practically all the time except during the dry season which was two weeks in March!

Our radio equipment was nearly new when I arrived. The transmitter was Collins 750-watt C.W. and grid-modulated phone with the Western Electric speech inverter for privacy. We handled radiotelephone calls to the other Central American countries. Every Sunday the duty consisted of copying press from WFL/WFD New Orleans to be distributed to a handful of subscribers.

Bluefields had about 8,000 persons and no daily paper. The Company frowned on any social contact with the Nicaraguans so any romantic encounters had to be kept under the cover of darkness. After all, what else was a 21-year old kid expected to do?

We lost two plate power transformers in the transmitter due to dampness. That put us off the air for awhile, but from the 1920's they still had a long-wave transmitter on about 2,300 meters, together with two 300-foot towers and a "T" antenna, keyed from the downtown radio office about a mile away. This whole thing was powered from 110 volts of Edison batteries which were charged by a diesel driven generator. This bank of cells was also used to light our living quarters. A native boy regularly charged them each afternoon for two hours. But when we started using the L-W transmitter the batteries became discharged rapidly. Somehow the word never reached the boy to keep up the charging beyond the two hours. As the terminal voltage dropped, one by one we burned out the starting resistors of the H-V motor-generator set. Then we were really off the air until the Collins plate transformers could be flown to Managua for rewinding.

I created quite a stir on the ham bands when I put the Collins rig on the 40-meter phone band and signed YN4A. As electric power was 30¢ per KWH I "jumpered" the meter to keep the light bill from rising. Many a time the Chief Op came on watch at 7 a.m. and the transmitter was still warm from the night's hamming. My first year with TRT consisted of service aboard S.S. MAYARI-HIPARI; TES DARIEN-HIPBD; and SS OROTAVA-HRAV. The second year was spent at Bluefields. Salary in those days aboard ship was \$125 and at YNB \$165 monthly.

I left Bluefields in 1937 to come back to Kansas for vacation and found I was unemployed because I refused to return to YNB for another year.

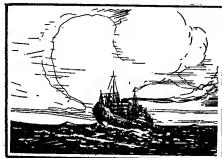
■ 30 ■

AN OPEN CHANNEL TO HAPPY MEMORIES



Little Black Sister of The Great White Fleet

By-Stanley F. Wade



While many people are familiar with the United Fruit Company's rise to the top in the banana business, ably assisted by their participation in the sugar trade. For many years, United Fruit was the only American Company which grew the cane on its own plantations, ground it in its own mills, transported the raw sugar in its own ships, and processed it in its own refinery. Plantations and mills were at Banes and Preston, in Cuba's Oriente Province, and the refinery, Revere Sugar, in the Charlestown section of Boston. Originally chartered vessels were used for transportation from Cuba to Boston but early in 1917 the first company-owned sugar carrier was placed in service, the LEVISA/KDL, which is the subject of this saga.

The LEVISA, a "Jaker" built by American Shipbuilding of Detroit, was launched as the CLITCHFIELD in 1916, and purchased by United Fruit shortly before America's entry into World War I. As with most of the United Fruit's ships, it took its name from a geographical location in which the Company operated, in this case Levisa Bay, a small body of water adjacent to Nipe Bay, upon which the "Central Preston" mill was located. She was 244 feet in length, with the forecastle on the fo'c'sle head, and mainmast on the poop, an odd-looking arrangement, but, beauty was not a high priority of her designers. Beam was 43 feet, deckhouses white, and hull black, a far cry from the sleek white hulls of its banana-carrying sisters. Maximum speed was 8 knots, and from personal observation, I'm certain that rating was as optimistic as the miles-per-gallon figures now being given to many of the currently manufactured automobiles. In *THE GREAT WHITE FLEET*, author John H. Melville writes: "Uff-bowed and squat, the LEVISA was a clumsy-looking duckling that lacked many comforts, which gave rise to the saying, 'Anyone who started his nautical career on the LEVISA really started at the bottom.' Although I did not start my career on that ugly duckling, I was fortunate, although some may consider otherwise, to have been aboard her during her final six voyages under the White Diamond of the United Fruit Company. Although the LEVISA was no cruise ship, it did provide certain benefits which others in the fleet did not. First, it was the only United Fruit ship of American Registry sailing regularly out of Boston. This was convenient for me since my home was in Stoughton, a Boston suburb. Second, it was a one operator ship, with no specified hours of watch, certainly a break compared with the six on - six off or eight on - eight off watches required of operators on United Fruit's ships. Third, operators aboard one-man ships received the same pay as Chief operators aboard the continuous watch vessels, provided they had equivalent seniority.

With World War 2 expanding in Europe, the LEVISA was able to make only a few voyages for United Fruit before being requisitioned by Uncle Sam, outfitted with armament manned by a Naval gun crew, and placed under military control. Little information is available regarding the ship's activities while being operated by the Government, but it is known she was one of the first ships to enter the harbor of Halifax, Nova Scotia, following the MONT BLANC explosion on December 6, 1917. Both the Naval and civilian crews were sent ashore to assist in the rescue work being carried on in the devastated city. Soon after the Armistice, the LEVISA was returned to its owners and restored to the sugar runs between Banes and/or Preston, and Boston. She continued in that service, with occasional south-bound stops to deliver general cargo to Havana, or soft coal to Kingston and Port Antonio, Jamaica. This service continued until the ship was decommissioned in July 1928, then sold in April 1929 to the Oriental Steamship Company, and its name changed to FOO WING.

Because of an increased demand for sugar following World War I, United Fruit added four new vessels, especially designed for the sugar run, to its fleet. These were the MARAVI, MACABI, MAYARI and MANAQUI, generally referred to as the "M" boats, all built in Glasgow, Scotland, delivered in 1921, and placed in the sugar service. For a number of years all four had white-painted hulls, reinforcing the LEVISA's position as "The

Little Black Sister." Larger than the LEVISA, and with ten knot speed, they operated for several years under the British flag, but were subsequently changed to Panamanian, then later, Honduran Registry. With five company owned ships available, chartered vessels were no longer required for the sugar runs.

Accommodations on the LEVISA left much to be desired. The radio operator had the best quarters aboard, better than those of the Captain. The radio shack and sleeping facilities occupied a room adjacent to the ship's chart room, directly below the bridge. The room was light and airy, the main drawback being the lack of screens over the portholes. When docked at either Preston or Banes, not far from the canefields, swarms of mosquitoes descended upon the ship at night, making it necessary for the room's occupant to decide whether to keep the ports open, and be eaten alive by the winged intruders, or close the ports and swelter. Usually closed ports won out, for the doorway to the chart room had a screen door which provided some ventilation. Bathing facilities were a bare minimum, with no pun intended. The only source of fresh water was a handpump on deck, outside the galley, and each crewman was furnished a bucket to transport fresh water to his quarters. There were two small salt water shower rooms, for officers and crew, but these were seldom used. Standard procedure for taking a fresh water bath was to borrow a bucket from a mate, or engineer, filling it and one's own bucket with fresh water, and bathing on the open deck, "soaping up" from one bucket, then rinsing off with the other. Unfortunately, the feed line from the fresh water tank below to the pump above ran alongside the ship's boiler, and most of the time the water was exceptionally hot and had to be let cool. This was fine in fair weather, but when the ship was rolling, and that was most of the time while at sea, the buckets would tip over and end up in the scuppers.

The transmitter originally installed by TRT was a Wireless Specialty marble-panelled 1 KW 500 cycle quencher-gap affair, replaced in 1927 by an RCA ET 3627 200 watt Vacuum tube unit. No information is available on the first receiver but it may have been one of Wireless Specialty's double-deck tuners. Somewhere along the line, possibly right after World War I, receiving facilities were modernized by installation of a Wireless Specialty IP-500. There was no emergency power supply either in the radio room or in the engine room. The ship's only generator was a 7.5 KW unit which had to power lights, radio, and ice boxes. This generator was so overloaded it was necessary to shut it down between 1300 and 1500 each afternoon, during which time kerosene lamps provided illumination in the engine room. Needless to say, this shutdown gave the radio operator an excellent opportunity for a siesta. When power was available, the voltage was always low and seldom sufficient to bring filament temperatures of the ET-3627 transmitter to the point where the oscillator tube would function. It was then necessary for the operator to go up to the bridge, whistle down the speaking tube to the engine room and say to the Engineer on watch, "For gosh sake, gimme another volt." Shortly thereafter, the pitch, or groan of the generator would pick up, filament voltmeter on the transmitter would climb half a volt, and the transmitter could be keyed. It was never necessary to inform the engine room when transmissions were finished, for if the transmitter was shut down, the generator would race, and the man on watch would promptly slow it down. This was a disadvantage, especially when receiving weak signals and noise from the transmitter's motor-generator created a problem. Several times it was suggested to the "powers that be" that a filament transformer with a slightly higher output voltage be installed in the transmitter but it was never done.

The LEVISA had neither a Direction Finder, nor a "Fathometer," although the latter would have been of considerable assistance during the ship's many trips across Nantucket Shoals. It did, however, have a "Distance Finder," manufactured by Submarine Signal, which, although a far cry from the DME currently used by aircraft, was of considerable assistance. At the time I sailed aboard "The Levi", Nantucket Lightship had both a radio beacon and a submarine bell, whose starting pulses were synchronized. Hydrophones attached to the ship's hull permitted underwater signals to be picked up at a distance of twelve to fifteen miles, as I recall, and radio signals were picked up by the ship's operator. Wire connections enabled the radio signals to be relayed to the bridge, where they were combined with the bell signals picked up by the hydrophones and by timing the difference between reception of the incoming signals, and applying a "speed of sound through sea water" formula, the exact distance from the lightship could be determined. By knowing the ship's course, and taking two different sets of

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observations, the moving ship's precise position could be obtained. This was crude but effective, especially when the customary fog prevailed off Nantucket.

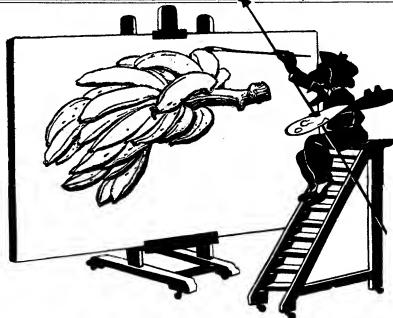
The LEVISA's flat-bottomed hull might have been satisfactory for transiting the Erie Canal, but it wasn't conducive to smooth sailing in the Eastern Atlantic. She would roll, pitch, and toss in anything heavier than a moderate sea, making little headway in any sort of blow. On one occasion, enroute from Boston to Cuba, the ship was caught in a southwesterly gale south of Nantucket, and hove to three and a half days. Since poor visibility prevented obtaining any idea of the ship's actual position, ultimately the Captain asked Lewis Hilles, (3409-SPG) the ship's operator at the time, to get a bearing from Cape Hatteras/NDW. Lew tried to contact NDW, but was unable to do so. However, he did note that Bermuda/BZB was coming in loud and getting louder. He reported this to the Captain, who shook his head and uttered a few unprintable words. Shortly thereafter the weather cleared and the ship's position was determined and it was found it had drifted east of Bermuda.

While sometimes annoying, the inability of the LEVISA to make headway in even a moderately rough sea had its advantages. At the Revere Refinery only one ship could unload at a time, and if a second vessel arrived before the first was unloaded, it would be moored at the end of the dock. Unloading generally required two days, and if the second ship arrived shortly after the first, it would have four days in port. Sugar ships enroute from Cuba to Boston usually sent their "will arrive" messages shortly after passing Cape Hatteras, and under normal conditions the "M" boats required about 50 hours to complete their voyage. The LEVISA, if seas remained calm and there was a minimum of fog, would require 65 hours. Knowing the LEVISA's peculiarities the shore staff in Boston took the position that they would "expect her when they saw her." Most of the time one of the "M" boats would leave a loading port in Cuba a day or two after the LEVISA had departed from the other sugar port and overtake its "Little Black Sister" a few days later, although they may not sight each other. When I was aboard the LEVISA, the Captain gave specific instructions that I was to be on the lookout for the "M" boat's daily position report, and to do all possible to intercept its arrival message. If I should miss this message I was to inquire "informally" of the other operator, "what time are you arriving at MWF?" It is amazing how many times we reached Revere to find that one of the "M" boats had arrived just a few hours earlier. I'm still wondering if the Captain reported to the Shore Superintendent that he had "rough seas," "head winds," "poor visibility," or if the Chief Engineer cited "water in the oil!"

Minor breakdowns, common aboard the LEVISA, were generally taken in stride. On one occasion, the Mate on watch, attempting to sound a passing signal on the ship's whistle, pulled it off the stack. Another time, the ship's carpenter, trying to take up slack in the radio antenna, exerted too much pull on the topmast lift, sending the fore topmast clattering to the deck. During one voyage, while going through Crooked Island Passage enroute to Preston, the tall end of a hurricane carried away the ship's antenna, and there was no spare aboard. After a diligent search ashore, the chief electrician at "Central Boston" located some secondhand .0000 gauge trolley wire, complete with a number of kinks. This wire, installed as the ship's antenna, made several voyages before being replaced. Could it be that the kinks changed the antenna's "H" thereby increasing its efficiency? The final breakdown led to the ship's last voyage under the United Fruit house flag, and was more serious as it resulted in the LEVISA being sold, and yours truly being out of a job.

Late in May, 1928, the LEVISA left Boston for Newport News where it was to load a cargo of soft coal for Jamaica. Arriving off Cape Charles, misfortune struck, the lining being ripped out of the engine's high-pressure cylinder. Anchor was dropped, the "resting" DC generator started to provide power for the radio transmitter, and a tug summoned to tow the disabled ship into the Newport News shipyard. Later it was towed to the coal loading dock where the waiting cargo for Jamaica was taken aboard, thence back to the shipyard. Repairs to the damaged HP cylinder took only a few days, but a general survey of the entire propulsion machinery found the main shaft out of line, probably having been in that condition for some time. Repairs to the shaft would take several weeks, and would be expensive, and it was decided to have the ship continue its voyage, with a further evaluation to be made if and when it returned to Boston. The voyage south and the ship's return to Boston, was made without incident and, after discharging its cargo, the LEVISA was tied to the end of the dock at the Revere Refinery while various options were evaluated by its owners. These were: 1. Have the main shaft realigned. 2. Send the LEVISA to sea as it was, taking a chance that it might become disabled. 3. Remove the "Ugly Duckling" from service, and put it up for sale. Although relatively young for a seagoing vessel, the ship was much slower, and its cargo-carrying capacity smaller than that of its bigger brothers, the "M" boats, the decision went to Option 3, saddening we who had enjoyed sailing aboard "The Little Black Sister."

■ 30 ■



Portrait of an Industry

THE GREAT WHITE FLEET



The United Fruit Company's Radio Telegraph System

THE "LOGO" OF A GREAT ORGANIZATION — THE BANANA.

"There's GOLD in them thar tropical swamps!" ... Columbus told the natives of Hispaniola and Cuba as the Santa Maria touched their shores during his epic voyage in Century 14. (*) However (**) no one did much about it until Century 18 when an entrepreneur named Minor C. Keith met Sea Captain Lorenzo Dow Baker. The Captain fished the New England Banks in summer but on 'off-seasons' chartered his craft to bring in extra dollars. Thus in 1870 his schooner, the "Telegraph", carried a load of mining equipment to Ciudad Bolívar up the Orinoco River. Returning, this shrewd Yankee dropped into Port Morant in Jamaica to pick up a cargo of bamboo for delivery to New York. Here he first saw and tasted the banana and was so impressed he loaded a small number of stems on his schooner with the idea of selling them on the East Coast.

After a fast trip north, Capt. Baker anchored in Jersey City where he disposed of his 'golden bananas' at a handsome profit. He was impressed with the sensation this unfamiliar and good tasting, unique fruit created among merchants along the Manhattan waterfront.

This was the "SPARK" that started a great industry. It was the first time in history that a single variety of fruit had such an impact on the eating habits of the world — especially in Europe and North America.

Captain Baker hired young Andrew Preston to 'huxter' this exotic new fruit for merchants of Boston and soon they were so successful they started the Boston Fruit Co., and in a few years (1899) it became the United Fruit Co. This parent company soon spawned many supporting organizations or subsidiaries — one of them being the TROPICAL RADIO TELEGRAPH CO. These organizations became "Giants in their own day" — hiring a galaxy of employees, many of whom were Wireless Operators. The "gold" of the banana was literally alchemized to gold coins which any bank would give in exchange for paychecks. There is a notable color-match in the golden color of the banana and the "Eagle" or "Half-Eagle" coins.

The banana became the "IN" food and was popular throughout the land. The media picked up the word "Banana" and what they did to it was murder! Soon ships of the UFC became the "Banana Navy". They talked and wrote about "Banana Republics and Banana-Land" — the countries bordering the Caribbean and Gulf. "Banana Oil" — the words (not the product) equated to ... "a lot of baloney!" "To go Bananas" meant that you were off your rocker! To say a person was "Bananas" meant that he or she had less than a full barrel of pickles. "Oh, Bananas!" meant 'Hertz' (whatever that meant). Of course everyone slipped on the banana peel because they were everywhere.

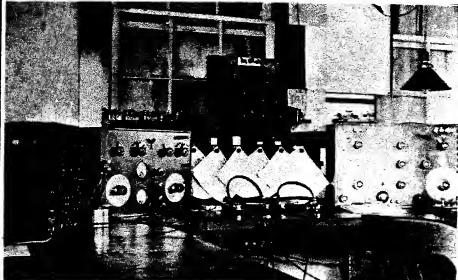
The music boys got into the act too. First came the wacky, daffy tune ... "Yes, We Have No Bananas", composed by Frank Silver. This kept things stirred up for ten years or so. A sequel was a jingle called "Chiquita Banana" which the Brazilian song-bird, Carmen Miranda, "did" for United Fruit. What fruit ever claimed so much glory and was so world renowned? This was the heritage of those who worked for the Great White Fleet and "Tropical Radio". ■ 30 ■

W.A.B.

(*) Historically inaccurate

(**) The banana was introduced to North America by a Spanish missionary named De Berlaga. He took them from the Canary Islands to Santo Domingo in 1516 — Five Centuries ago! Tempus fugit!

SWAN ISLAND 'US'



SWAN ISLAND is a small coral island situated in the Western Caribbean at Latitude 17° 22' N., and Longitude 83° 57' West. None but the most detailed maps show the island as it is only about two miles long and a half mile wide. The highest point on the island is some fifty feet above the sea. A good portion is covered by a coconut grove of about 8000 trees. The rest of the island is wooded with a variety of trees and underbrush. Most of the shoreline is of a sharp coral rocks and cliffs. Several sand beaches are found on all sides of the island.

The Island is about 900 miles south of New Orleans and some 90 miles northwest of Correto, Honduras. It is one of the most beautiful islands in all the world — a poet's dream, except during hurricane season. [These words are not Ye Ed's]

Swan Island was named after its English discoverer, Captain Swan. Pre-UFCo there were no people on Swan except an old gentleman who called himself Captain Adams. He was in charge of the Swan Island Commercial Company, a U.S. Corp., which owned all 1300 acres of the Island — and perhaps wished it didn't. Captain Adams had a dozen or so natives of the Cayman's as laborers, who dug phosphate shale for intermittent export. They also fished, hunted game and spent part of their time harvesting coconuts for a living.

Swan Island should become a 'memorial' to Mack Musgrave who engineered the first installation of a radio station there. It took him nearly 8 months to overcome lightering ashore of the heavy equipment on the open sea from anchorages a mile or so off shore. Finally late in 1907 the station with its 10 K.W. Spark was finally commissioned.

The site on Swan Island was selected as a relay point for traffic between New Orleans and Central American stations. It quickly developed that due to intense static, signals could not be relied upon to get through to maintain reliable communications so power at 'US' was increased with new equipment.

SOWP member STEPHEN PAULL (1453-V) was assigned to Swan Island by the U.S. Weather Bureau along with observers Harold Crutcher and George Barnes to re-establish a weather station on the island. They commissioned station "WWFL" and furnished regular meteorological reports from Swan Island. "Steve" Paull reported that Mr. Donald Glidden was caretaker of the Island for United Fruit Company. This was in 1941. He also informed us that 'humidity' and 'flying salt spray' caused them the biggest problem, especially with equipment and corrosion thereof.

Reporting on 'flora and fauna' of the island, "Steve" said ... "who can forget the iguanas, rats and lizards? The iguanas are all over the island, and being vegetarians, make their ugly appearance in gardens and coconut trees feeding on plants and coconut blossoms. Rats make their appearance known at night by mysterious noises which were usually attributed to 'Captain



STEPHEN PAULL - 1453-V

Served as Weather Observer for the U.S. Weather Bureau on Swan Island 1940-41. His Swan Island call was KD4GYM. He now lives in Marquette, Michigan. Call - N4SP.

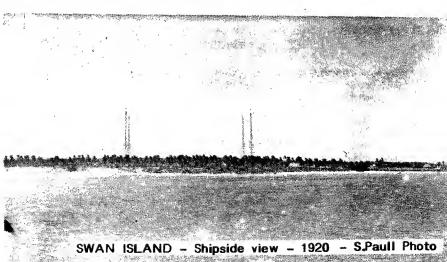
TROPICAL RADIO TELEGRAPH CO. STATIONS



Swan's ghost*.

The lizards are the best friends of the animal kingdom. Realizing that they are largely responsible for reducing the insect and mosquito population, we didn't mind at all if occasionally one of these comical little creatures was found perched on the microphone or typewriter. They are so very curious that I had a mind to teach one of them the code and let him do my CQing for me on CW*.

Steve spent two years on the Island during which time he operated KD4GYM. That is another story — and a very interesting one which we hope to bring you at some future date.



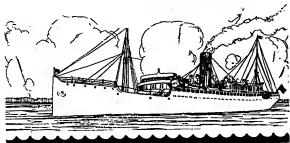
SWAN ISLAND - Shipside view - 1920 - S.Paull Photo

OPERATING POSITION - SWAN ISLAND ("US") - 1920
Receiver at left was designed and built by Operator A.E. Hapeman; One at right, "Battleship Type [IP-500] WSA Co. designed and built by C. C. Harris. CCH Photo - 1920



SWAN ISLAND WIRELESS STATION 1920

Station located 90 miles off Honduran Coast occupies 25-Acres on west end of Great Swan. First station was built in late 1907. Rebuilt and enlarged in 1912. Photo by C.C. Harris.



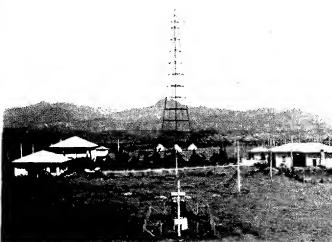
"Gord" Pascoe [33 - SGP] Charter Member worked for TRT at WNU "UC" Pto. Castilla and "UG" Tegucigalpa from 1924 - 1926. He has included a few pictures he snapped nearly 60 years ago, as shown on this page... "Gord" worked nearly 40 years for the early "AIR MAIL" and later Federal Airways (CAA) - now FAA.

ADVENTURES ALA TRT

[UG]

TEGUCIGALPA
HONDURAS

View of tower -
400' or more in
height and TRT
buildings at UG.



[UG]

TEGUCIGALPA
HONDURAS

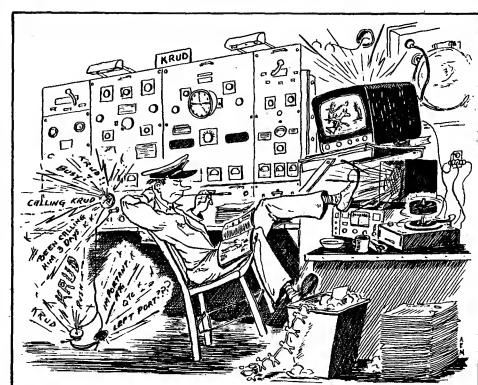
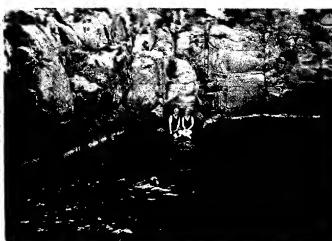
View of UG Xmtr
plus Residence &
other buildings at
UG... GHP Photo.
1926



[UG]

TEGUCIGALPA
HONDURAS

"Our 'UG' Swi-
mming hole. A
small stream
dammed up. A
fine place to
swim..."



By-Gordon Pascoe

The following service record may be of interest and I quote verbatim:

From Reverse Side of Licenses:

New Orleans (WNU) May 9, 1924 to June 5, 1924 - H. O. Easton
Pto. Castilla (UC) June 6 to Aug. 17, 1924 - H. O. Easton
Pto. Castilla (UC) Aug. 15, 1924 to Feb. 2, 1926 - E. L. Commagere
Tegucigalpa (UG) Feb. 1, 1926 to Aug. 12, 1927 - E. L. Commagere
(Chief at Tegucigalpa)

Following is a note of interest about the beautiful poinsettia plants we see at Christmas. Gord enclosed an interesting story about them as follows:

How did the poinsettia get its name? We had an ambassador to Mexico named Poinsett and when he came back to the U.S. he brought some of these beautiful flowers with him. It was the 19th century. The people in Washington appreciated them so much they named them poinsettias. But in Mexico they had an entirely different name.

There was a legend, the way the flower came into being. There was an important mass in the Mexican City Cathedral. The people attending were all dressed in their finery. A poor peon, practically dressed in rags, wanted to go in and worship but was embarrassed to join all the fine-looking people so he found a place outside where he could kneel and join the prayers. Later a beautiful red flower grew on this spot. It was the first, and Mexicans called it the "Flower of God."

This story brought to mind an experience I had in one of Mexico's neighbors, the Republic of Honduras. I was assigned to the high-powered radio station at the capitol, Tegucigalpa. (Mayan for Silver Hill.) On occasion, for the exercise and to view the beautiful countryside, I would climb one of the 425-foot high antenna towers.

My attention would always become riveted to a little white building far out on the plain. This intrigued me, and I asked our lineman Ohenio if he knew what it is. He replied, "Si, Jefe. It is a little church, built on the spot where a traveler had laid down to rest and had fallen asleep. He was awakened by something prickling him. It was a little angel with a sword, and the traveler was told he was chosen to build a church on this spot, and the angel turned into gold.

"The traveler immediately put other matters aside and eventually had the church built and the golden angel complete with sword was placed in an honored spot."

I felt I should go there to see the church, so I had Ohenio saddle my horse, whom I had named "Sparky," diminutive for "Spark Plug," and I started out. It was about a two-hour ride on horseback.

I tethered my horse on a hitching post and, with proper respect, entered the church. After a short prayer, as would be customary I walked over to a glass case where out of the corner of my eye I had seen the golden angel with wings extended and the sword held in one hand, extended outward as if in the act of stabbing. It was so much a reminder of the story. Having been raised in New Orleans, a Catholic town, I was used to seeing statues of the saints, but here they were fully clothed with garments of the times.

Now I began to think about my horse, who had not had water for a long time, and if he could get loose, would come up to the church steps, being used to coming into the radio men's residence patio and drinking from the fountain, so leaving a small donation in the poor box, I hurried out and soon was on my way. I had not gone very far when I noticed three horsemen were following me. There were many bandits in this wild country. For safety's sake I gave Sparky the "gun" and quickened our pace. Probably nothing to worry about though, for about an hour later, the other horsemen had disappeared, and I had a good story to tell my colleagues.

Society of Wireless Pioneers

THE STORY
OF TROPICAL
RADIO

By—V.W. Cornelius

(Continued from Page 11)

At an earlier date, WNU was located in lower New Orleans, but do not remember the location. It was way before my time. At one time I had a magazine publication which gave history of TRT, but it has been lost during the years. Believe the first shore station was installed at some tropical port in 1912.

Unfortunately, I don't believe there is anyone still active in TRT who could give you any information as all of them are "Johnny-Come-Latelys." Of the WNU crew since my time, there are three of us left, one after my time, and the other before my time. The latter is "Al" Alvested, who worked at WMB and was, until his retirement, Plant Superintendent at WNU. However, he isn't in any shape to supply any information. When Ed Long died I dropped Al a note to let him know. His wife called to let me know he had been in hospital for five weeks and was apparently in pretty bad shape. When Wes Hille died a couple of weeks ago, I dropped another note but have not heard anything. Al lives in Clearwater, Fla.

Was a surprise birthday and wedding anniversary party for Lee Tilton last night. It was his 80th birthday and 47th wedding anniversary. Lee is "at large" member of Chapter 18. He and I go back to about 1921. Lee might be a source of some material, as he was in White Fleet before me and worked at WBF. He and I sailed together frequently. Lee left radio and became very successful commercial photographer in New Orleans. I was unable to make the organizational meeting of 18, but hope to make the next one. Did find out I have lowest member number. I'm 302.

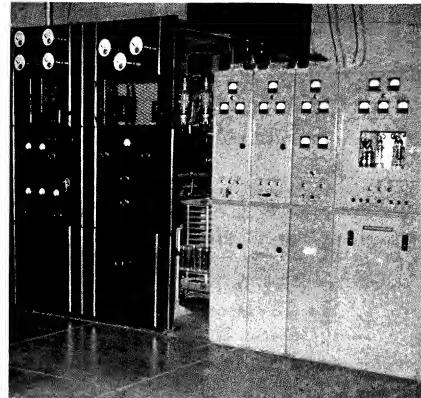
Hope some of this rambling may be of use, Bill, but if not, I won't feel badly. Just drop it in your round file.

My best to you and hope you can round up a good file on TRT, which incidentally today is known as TRT Telecommunications.

■ 30 ■



Our Wavelength is Brotherly Love



"WNU" 'THE OLD' vs 'THE NEW' - KENNER - 1948

This was photo of the old composite 5 KW Xmtr (left) alongside the new Westinghouse 9KW units at Kenner in 1948-49. The old unit was "homebrewed" from the old 20 KW 3331 meter (90KC) job which was in use at the City Park (Nola) location. Looking between the old and new units, one can see one of the tuning capacitors. Note the plate spacing. Two of the three PA tubes can be seen - there were 3 849's in parallel and a 813 used as driver. The oscillators were 6L6's. This was dual frequency - (500/448) with remote frequency shift. The emergency Xmtr was a RCA ET3626. It was located in the corner behind and can not be seen. Antenna was balanced "T".

The Westinghouse units were type "MW" (two left hand positions. The right hand unit was "mastered" and left hand was "slave", dual fcy (400/448). The right hand unit was one of the HF xmr's and next to it was the 20 KW rectifier. This unit was single fcy rated at 2-3 KW. Don't recall date but "WNU" working fcy was changed from 448 to 478 kcs - think this to do away with some interference to super-het receivers most of which had 456 kc IF's. (We did have some problems from nearby neighbors so kept a number of wave traps on the shelf. Photo from V.J. Cornelius collection, also this commentary.

The SCIENTIFIC & HISTORICAL RECORD OF THE EARLY DAYS OF WIRELESS

SPARKS JOURNAL

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